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Curricula vitae of candidates nominated by States Parties for election to the Commission on the Limits of the Continental Shelf

Note by the Secretary-General

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I. Introduction

The Secretary-General has the honour to submit to the Meeting of States Parties the curricula vitae of the candidates nominated by States Parties for the election of 21 members of the Commission on the Limits of the Continental Shelf. A list of the candidates nominated for this election is contained in document SPLOS/150. A note by the Secretary-General on the election of the members of the Commission on the Limits of the Continental Shelf is contained in document SPLOS/149.

II. Curricula vitae of candidates

Alexandre Tagore Medeiros de Albuquerque (Brazil)

Date and place of birth: 25 November 1940, Rio de Janeiro, Brazil

Academic background

Degree in Marine Sciences, Brazilian Naval School, 1964

Degree in Mechanical Sciences, Course on Machinery, Brazilian Navy, 1968

Professional activities

1975-present	Technical activities in the Brazilian Hydrographic Service (Directorate of Hydrography and Navigation).
1986-1989	Under-Secretary of the Inter-Ministerial Commission in Brazil for Marine Resources.
1986-present	Head of the Executive Committee on the outer limits of the Brazilian continental shelf.
1987 and 1988	Member of the Brazilian delegation to the Preparatory Commission for the International Seabed Authority and for the International Tribunal for the Law of the Sea, held in New York and Kingston.
1991	Member of the group of experts invited by the United Nations concerning the implementation of the Article 76 of the UNCLOS.
1992	Under contract with the United Nations, preparation of a background paper on the outer limit of the continental shelf based on the experience acquired by Brazil.
1993	Member of the United Nations group of experts, on the preparation of the document entitled "Definition of the continental shelf: A study on the relevant provisions of the UNCLOS".
1993-present	Member of the group of experts maintained by the International Hydrographic Organization (IHO) concerning maritime boundaries.
1995	Member of the Brazilian delegation to the first meeting of the Joint Cooperation Commission Brazil/Namibia regarding the delineation of the Namibian continental shelf.
1995	Member of the group of experts that made suggestions related to the establishment of the outer limits of the continental shelf with the purpose to establish a modus operandi to the future Commission on the Limits of the Continental Shelf, held in New York.

2000 — Co-author of the paper "LEPLAC: The Brazilian Continental Shelf Project", presented at the workshop held in Buenos Aires, from 13 to 17 November.

2002 — Head of the Brazilian Working Group that organized the Training Course on the Continental Shelf, held in Rio de Janeiro for 25 experts from different countries.

Activities as a member of the Commission on the Limits of the Continental Shelf

Member of the following research groups created in 1997 by the Commission in order to elaborate the Commission's Scientific and Technical Guidelines: Hydrography, Geodesy and Outer Edge of the Continental Margin.

Member of the working groups on chapters 1, 2, 3, 4 and 5, created in 1998 in order to prepare the draft guidelines.

Chairman of the working group on chapter 9 of the guidelines.

In 2002, member of the Subcommission which examined the Russian Federation submission.

In 2005, Vice-Chairman of the Subcommission in charge of the examination of the Australian submission.

In 2006, Vice-Chairman of the Subcommission in charge of the examination of the New Zealand submission.

Lectures

Albuquerque, A. and Carrera, G., "Information on the outer limits of the extended continental shelf", presented at the ABLOS International Conference, held in Monaco (9 and 10 September 1999).

Albuquerque, A. and Carrera, G., "An outline for the preparation of a national submission to the CLCS", presented in the Open Meeting of the Commission, held in New York (1 May 2000).

Albuquerque, A., "Foot of the continental slope determined as the point of maximum change in the gradient at its base", presented at the workshop on the Continental Shelf, held in Buenos Aires (13 to 17 November 2000).

Albuquerque, A., "Preparation of a submission to the Commission", presented at the workshop on the Continental Shelf, held in Buenos Aires (13 to 17 November 2000).

Osvaldo Pedro Astiz (Argentina)

Date and place of birth: 14 November 1940, Buenos Aires

Language skills: Spanish: native speaker

English: fluent

Portuguese, French: reading knowledge

Studies, training, experience

Graduated as naval officer (1962); Officer of Command and Staff (1980); Capitán de Navío (Captain) (1987); retired (1992).

Licentiate in Hydrography, Instituto Technológico de Buenos Aires, ITBA, 1971. Complemented with subjects of Licentiate in Physical Oceanography, including marine geophysics and geology.

Participation in hydrographic and oceanographic cruises (eight years) and in planning and management of hydrographic and oceanographic studies (nine years).

Since 1975: Participation in activities related to international boundaries and limits.

Superior Course on Strategy (1986) and Course on Prospective (1987) at the Superior School of War of the Army.

1990 to 1992: Expert in Technical Aspects of Maritime Limits (International Hydrographic Bureau, IHB).

1994-present: Argentine expert of the Intergovernmental Oceanographic Commission (IOC) on Marine Scientific Research (art. 2, Annex VIII, UNCLOS).

Professional activities

Current activities

1997-2002 and 2002-2007: Member of the Commission on the Limits of the Continental Shelf. Vice-Chairman 1997-2004. Participation in the meetings of the Group of Technical Experts on the Definition of the Continental Shelf (March 1993) and in the Group of Experts on Preparations for the Establishment of the Commission on the Limits of the Continental Shelf (September 1995), Division for Ocean Affaires and the Law of the Sea, United Nations, New York.

Member of the Subcommission appointed by the Commission on the Limits of the Continental Shelf for the consideration of the submission made by the Federative Republic of Brazil, since 2004.

1992-present: Advisor on cartographic, geographic and boundaries affairs, Ministry of Foreign Relations, Argentina.

Previous activities

Eleven years on hydrographic and oceanographic ships, first as officer and later as commander (four different ships). Four years in vessels and on staff of the Maritime Fleet.

Eleven years in the Naval Hydrographic Service (NHS) in all posts of the departments of Hydrography and Security of Navigation, Technical Secretary, Deputy Chief and Chief of the Service (1990).

One year as chief of an Antarctic base. Visited seven Antarctic bases.

Hydrographic and oceanographic surveys in rivers, lakes and in the western South Atlantic off South America to Antarctica.

Direction of hydrographic studies for a gas pipeline project across the eastern entrance to the Strait of Magellan (1975-1976).

Adviser to the Navy of Bolivia on the hydrographic survey of Lake Titicaca (1975).

Hydrographic studies for a deep-water port: Chief of Operations (1973-1974) and Cabinet Chief (1975-1979).

Expert Adviser to the Argentine Delegation to the Holy See, until the exchange of ratification documents of the 1984 Treaty on Peace and Friendship, between Argentina and Chile.

Argentine representative to IHB for the new edition of *Limits of Oceans and Seas* (SP 23) (1982-1984).

Representative at the International Maritime Organization (IMO), Subcommittee on Security of Navigation (1983-1984).

Argentine member of the Working Group on Geodesy and Geographic Information (WGGGI) of the Scientific Committee on Antarctic Research (SCAR) (1979/1992).

Participation in the project on navigational aids (signals) in the Paraguay and Parana rivers (Hidrovia) (1995).

Geographic adviser in the Process of Peace between Ecuador and Peru. Brasilia, Rio de Janeiro and Buenos Aires, 1997/1998.

Conventions, conferences, meetings

Week on Geography, Cordoba, Argentina (1976). Lecturer on the studies for a pipeline project across the eastern access to the Strait of Magellan.

First United Nations Regional Cartographic Conference for the Americas, Panama (1976).

First National Meeting on Photogrammetry and Related Sciences, Organizing Committee, Buenos Aires (1976).

Second Inter-American Naval Conference on Hydrography, Oceanography and Naval Research, Buenos Aires (1979).

International Geodetic and Geophysical Union Conference, Canberra, Australia (1979).

Meetings of WGGGI of SCAR: Canberra (1979), Hobart (1988), Bariloche, Argentina (1992).

Conference of the Pan-American Institute of Geography and History, Santiago; Chile (1982).

Twelfth International Hydrographic Organization (IHO) Assembly, Monaco (1982).

Conference of the Subcommittee on Security of Navigation, IMO, Argentine representative, London (1984).

Eleventh Omega International Technical Conference, Tokyo (1988).

First (1989) and Second (1991) Panel about Antarctic Update. Panellist on cartography and geographic place names and on services for Antarctic activities. Argentine Council for International Relations (CARI), Buenos Aires.

Fifteenth Antarctic Treaty Consultative Meeting, Paris (1989).

United States Hydrographic Conference '90. Norfolk, Virginia, USA (1990).

"The Antarctic Treaty System, present and future". Lecture delivered at School of Philosophy (Geography), University of Buenos Aires (1990).

First meeting of the Group of Experts on Antarctic Environmental Monitoring (observer), Buenos Aires (1992).

Twenty-second meeting of delegates to SCAR (member of delegation), Bariloche, Argentina (1992).

Member of the Argentine delegations at the preparatory meetings with Chile of the Working Groups on Shared Water Resources and on Air and Maritime Navigation, Santiago (1996). Participation at the meetings of this Group (1996-1998).

Panel on "Judicial settlement of disputes between States", Prof. Bardonnet, Buenos Aires (August 1996).

Sixth Meeting of States Parties to UNCLOS, March 1997. Member of the Argentine delegation.

Participation at the sessions of the Commission on the Limits of the Continental Shelf from its establishment to the present.

Open session of the Commission on the Limits of the Continental Shelf, 1 May 2000, United Nations Headquarters. Presenter.

Workshop: "Continental Shelf — Buenos Aires 2000", 13-15 November 2000. Lecturer on "The United Nations Convention on the Law of the Sea and the Outer Limits of the Continental Shelf".

Invited lecturer on "Some aspects of the Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf". Rio de Janeiro, Brazil, 20 November 2000.

Lecturer on "The Argentine continental shelf, article 76 of the Convention and the Scientific and Technical Guidelines of the Commission", National Academy of Geography, Buenos Aires, 22 June 2001.

National Conference on Geography, Puerto Madryn, Argentina, 19-23 September 2001. Invited lecturer on "The Argentine continental shelf and its challenges".

IV Regional Training Course on the Outer Limit of the Continental Shelf beyond 200M and the preparation of a submission to the CLCS for Latin America and Caribe, organized by the Division for Ocean Affaires and the Law of the Sea of United Nations and the Commission for the Outer Limit of the Continental Shelf (COPLA) of the Argentine Republic. Lecturer. Buenos Aires, 8 to 12 May 2006.

Workshop on the Resources of the Seabed and Subsoil, Commission for the Outer Limit of the Continental Shelf (COPLA) and Argentine Council for International Relations. Lecturer. Buenos Aires, 15-17 May 2006.

Decorations, associations and organizations

Knight Commander of the Order of Saint Gregory The Great (civilian class), awarded by His Holiness, John Paul II (1985), for the 1984 Treaty of Peace and Friendship Argentina-Chile.

Member of the Committee on Antarctic Studies (since 1988) and of the International Law Institute (since 1995) of CARI.

Member of the Argentine Academy of the Sea since 24 June 1997.

Teaching experience, studies, advice and publications

Full Professor (1976-1980). Instruments for Hydrography, Hydrography and Hydrographic Projects, at ITBA, Licentiate in Hydrography.

Professor of Oceanography at the National Nautical School (1977).

Several lectures at universities on boundaries, limits, geographic and Antarctic affairs and maritime spaces, hydrography and oceanography.

Preparation of technical aspects of Argentine law on baselines and maritime space (1975-1991).

"Operaciones en Playas" (Shore Operations), technical publication of NHS (1973).

Adviser on maritime limits for the Guinea-Bissau/Senegal arbitration (1989).

Argentine contribution to translation into Spanish of the *Hydrographic Dictionary* (1976-1978) and for updating "Limits of Oceans and Seas" (1982-1990), of IHB.

"Antártida al iniciarse la década de 1990" (Antarctic at the beginning of nineties"). Author of the chapter entitled "Cartography and Toponymy", CARI (1992).

Consultant on topography, hydrography, oceanography and preservation of the environment for the treatment of sewer effluents (1992).

"*Specifications for Topographic Surveys*", co-author. Federal Council for Freshwater and Drainage (1992).

Preparation of the regulation on the education, training and certification of merchant navy personnel (1992).

"La Cartografía en la Antártida", co-author, Boletín No. 2/92 of the Centro Argentino de Cartografía (1992).

"*Antártida y el Sistema del Tratado Antártico*" (Antarctic and the Antarctic Treaty System), co-author, CARI (1996).

"Plataforma Continental — La Determinación del Límite Exterior" (Continental Shelf — The Establishment of the Outer Limit), chapter of the book entitled *El Nuevo Derecho del Mar* (The New Law of the Sea), Institute of International Law, CARI (1997).

"La Argentina, la Antártida y el Sistema del Tratado Antártico" (Argentina, the Antarctic and the Antarctic Treaty System). Basic information document for the educational area, produced by the Antarctic Studies Committee, CARI Co-author (1999).

Lawrence Folajimi Awosika (Nigeria)

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Tel/Fax. 234-1 8966861

Occupational objectives

A professional position of challenge where my knowledge in Marine Geology/Geophysics Oceanography, Hydrography, Land Ocean Interactions, Coastal and Marine Management in general and project management can be fully utilised.

Personal information

Date of birth:	27 July 1949
Place of birth:	Ondo, Ondo State, Nigeria
Marital Status:	Married with four children
Health:	Excellent

Education

Aquinas College Akure Ondo State Nigeria 1964-1968
West African School Certificate Grade 1.

Howard University Washington, D. C. USA 1974-1977
B.Sc. Geology G.P.A.,3.36 Cum Laude

George Washington University Washington, D. C. USA 1978-1980
M.Sc. Geology 1980

Emphasis:	Geophysics, Sedimentology, Stratigraphy, Field Geology, and Geochemistry.
Research:	Seismic and Gravity Survey of Triassic Sediments in Arcola Quadrangle, Virginia. U.S.A.
Thesis:	"Magnetic Survey of Basalt Flows in Remington Quadrangle, Virginia. U.S.A."

University of Obafemi Awolowo Ile Ife.
PhD. Applied Geophysics 2005

Thesis:	Geophysical Survey of Avon Canyon in the Western Nigeria Continental Shelf.

Emphasis: Seismic interpretation and continental shelf transport/circulation and depositional dynamics.

Post-graduate training

Diploma, Marine Geophysics
Spanish Institute for Oceanography, Fuengirola, Malaga
Spain. June to Oct 1985.

Course on Ocean Waves and Tides.
International Center for Theoretical Physics
Trieste, Italy. Sept. 26-Oct. 28 1988

Seventh Sea Level Training Course
Proudman Oceanographic Laboratory, Merseyside Bidston U.K. 12- 30 June 1989.
Course organised by the Intergovernmental Oceanographic Commission (IOC) of UNESCO for Global Sea Level Observing System (GLOSS).

5-month work study at Dept of Oceanography, University of Southampton U.K., Oct. 1990 to March 1991 ("Sediment transport dynamics in the western Nigerian Continental Shelf").

Certificate of Achievement for successfully completing Mobil/Nigeria OIL MAP Training course May 1998.

Professional awards

Best NIOMR Scientist 1999

Commander — Federal Republic of Equatorial Guinea: Merit award by the President of Equatorial Guinea for outstanding services during the Nigeria/ Equatorial Guinea Maritime Boundary Negotiations. 2002

Professional Merit Award of Excellence to Ocean science 2004: Fisheries Society of Nigeria

Affiliations

American Geophysical Union

Association of American Petroleum Geologist

Nigerian Association of Petroleum Explorationists

Geological Society of Nigeria

Nigerian Association of Oceanographers

International Coastal and Ocean Organisation

Employment chronology

Washington Metropolitan Area Transit Authority (METRO). Washington, D. C., U.S.A. Dec. 1972 to Dec. 1977. Involvement: Maintenance Shop Mechanic, Later Assistant Foreman Mechanic workshop, Bladensburg road, Washington, D. C., U.S.A.

Howard University Washington, D. C., U.S.A. Jan. 1976 to April 1977. Involvement: Graduate Assistant (Sedimentation and Physical Geology).

University of Maryland, College Park, Maryland. U.S.A. Dec. 1977 to April 1978. Involvement: Laboratory Instructor — Physical Geology.

Howard University, Washington, D. C., U.S.A. Aug. 1980 to Dec. 1981. Involvement: Lecturer — Geophysics and Environmental Geology.

Present employer

Nigerian Institute for Oceanography and Marine Research (NIOMR) P.M.B.12729 Victoria Island, Lagos.

Position: Assistant Director Marine Geology/Geophysics Division

Responsibilities at NIOMR

Head Marine Geology/Geophysics Section

Project leader: Geological/Geophysical survey of the Nigerian Continental Margin.

Project leader: (I) Heavy mineral provenance of the Niger/Benue catchment basin and beach sediments along the Nigeria coastline (1983 to 1985).

Project leader: Beach erosion, coastal zone management and ocean dynamics studies (Assistant project leader 1983 to 1990, Project leader 1990 to present).

Project leader: Global Climate Change and Sea Level Rise studies in Nigeria.

Contact Person and officer in-charge of Global Sea Level Observing System (GLOSS) tide gauge in Nigeria as well as NOAA (National Oceanographic and Atmospheric Administration of the United States of America) Next Generation Water Level Measuring System (Tide Gauge) in Nigeria.

Project Leader: Video mapping of the entire Nigerian coastline for the assessment of impacts of 1m sea level rise on the Nigeria coastline (1993). Collaborative project between NIOMR and the Center for Coastal Research of the University of Maryland, College Park, U.S.A.

Project leader: IOC/FAO/UNEP project-Study of physical/Geological oceanographic aspects affecting transport and dispersion of pollutants in Lagos Lagoon Nigeria.

Participating geophysicist in the African Mapping project (AMMP) in collaboration with Paterson, Grant and Watson Ltd of Canada International Institute of Aerospace and Earth Sciences Delft, the Netherlands (ITC) and the University of Leeds, U.K. (ULIS).

Principal scientist in charge of Shipboard Environmental Acquisition System (SEAS III) in the South Atlantic. A NOAA International project in support of the World Ocean Climate experiment — WOCE.

Part time Lecturer of Marine Geology/Oceanography- University of Lagos Akoka, Lagos — Department of Marine Sciences (August 1996 to 2004.).

National Coordinator ODINAFRICA Project. IOC UNESCO project covering 23 countries in Africa.

Head Intergovernmental Oceanographic Committee for the Central Eastern Atlantic (IOCEA) of IOC UNESCO Project Office (2002-2004).

Commission on the Limits of the Continental Shelf and related national and international positions

Elected member: United Nations Commission on the Limits of the Continental Shelf (CLCS) 1997-2002.

- Vice Chairman: United Nations Commission on the Limits of the Continental Shelf (1997-2002).
- Chairman: United Nations Commission on the Limits of the Continental shelf committee on training (1997-2002).
- Member: United Nations CLCS subcommission for the consideration of the Russian State submission on extended continental shelf claim (2002).

Re-elected member: United National Commission on the Limits of the Continental Shelf (CLCS) (2002-2007).

Member of CLCS Subcommission on the Brazilian submission.

Member of CLCS subcommission on the France, Ireland, Spain and the United Kingdom Joint submission.

Resource person: DOALOS training on Article 76 for Africa held in Accra Ghana, 2005.

Resource person to the NEPAD/IOC/CIDA Article 76 training programme for Africa.

Member: Nigeria/Equatorial Guinea maritime boundary negotiating team (National Boundary Commission).

Member: Nigeria/Sao Tome and Principe maritime boundary negotiating team. (National Boundary Commission).

Member: Nigeria/Benin Republic maritime boundary negotiating team (National Boundary Commission).

Member: Nigerian delegation to the Hague and expert on Maritime boundary-Nigeria/Cameroon Boundary Case at The Hague (National Boundary commission).

Member and leader of the Technical Team on the Nigerian Extended Continental Shelf Claim project (National Boundary Commission).

International assignments undertaken for United Nations agencies and other international agencies

ROPME/IOC/NOAA 100 cruise in the Persian Gulf (ROPME Sea Area) to assess the impacts of the Gulf war on the marine environment. Intergovernmental Oceanographic Commission expert onboard NOAA R/V Mt. Mitchell, Leg VIA. 20 May to 30 June 1992, Kuwait to Abu Dhabi.

Member: of UN Law of the Sea Office group of technical experts on the definition of continental shelf, Law of the Sea office, United Nations, New York, New York 1993-96.

Member: Intergovernmental Oceanographic Commission Editorial Board for the International Bathymetric Map of the Central Eastern Atlantic (IBCEA) 1989-present.

Member UNEP Task Team on Global Climate Change and impacts on the West and Central African Region (1990-present).

Intergovernmental Oceanographic Commission Committee of the East Central Atlantic (IOCEA) Regional Coordinator for Global Level of the Sea Surface 1993-present.

Member of Scientific Steering Committee for Land Ocean Interaction in the Coastal Zone (LOICZ) of the International Geosphere Biosphere Programme 1996-2002.

IOCEA (Western African region) regional coordinator for IODE (International Oceanographic data exchange) of Intergovernmental Oceanographic Commission (1997-present).

Member of advisory board on Marine Natural Resources Management of ACOPS (Advisory Committee on Protection of the Sea) 1997-2003.

Member of the UNEP group of experts on the development of a GEF project for a Global International Waters Assessment (GIWA) (1997-2000).

Member: Intergovernmental Oceanographic Commission group of experts on GOOS (Global Ocean Observing System) Coastal Module 1998-2001.

United Nations designated expert to the Group of Experts on the Scientific Aspect of the Marine Environment Protection (GESAMP). Also member of the Working group on Marine Environment Assessment of GESAMP (1998 to present).

National Coordinator: Oceanographic Data and Information in Africa 2000 to present.

Head: Intergovernmental Oceanographic Commission of the Central Eastern Atlantic (IOCEA-UNESCO) Project Office Lagos (2001 to 2004).

Publications

Has published over 75 international and national papers on marine related topics (complete list available upon request). Notable and relevant ones include:

Awosika, L. F., (1980). Magnetic survey of Jurassic Basalt flows in the Northwest portion of the Remington 7 1/2 minute Quadrangle in Fauquier Culpeper counties Virginia, USA. *GEOLOGOS VI No. 1*, Published by the Department of geology and Geography, Howard University Washington, D. C. pp. 37-64.

Awosika, L. F., (1988). Bathymetric and Geomorphic features of the western Nigerian Continental shelf. In Proc. *Joint Oceanographic Assembly* 1988, Acapulco Mexico.

Ibe, A. C., Awosika, L. F., Ihenyen, A. E. and Ibe, C. E., (1989). Erosion management strategies for the Mahin mud beach, Ondo state, Nigeria. *In proc. Coastal Zone '89. American Society of Civil Engineers*, pp. 1740-1754.

Ibe, A. C., Awosika, L. F., Ihenyen, A. E., Tiamiyu, A. I. and Ibe, C. E., (1989). A study of currents and possible scouring effects at a proposed Oil well location in the

Cross river Estuary, Nigeria. Geomorphology and Geoecology. *Second International Conference on Geomorphology*, Sept. 3-9, 1989.

Awosika, L. F., Ihenyen, A. E. and Tiamiyu, A. I. (1989). Marine Geology of Lekki lagoon, Nigeria. A report for *COMARAF project*.

Awosika, L. F., (1989). Coastal Geomorphology and effects of sea level rise on the West and Central African Region (WACAF). UNEP Task Team on impacts of Global Climate Change on the WACAF region. UNEP (OCA/PAC)WG.6/INFO.16.

Awosika, L. F., (1990). Coral Bank obstruction to trawling in the middle to outer continental shelf east and west of Lagos, Nigeria. *NIOMR Pub. No 57*, 13p.

Awosika, L. F., Ibe, A. C., Ibe, C. E. and Inegbedion, L. E. (1991). Geomorphology of the Lekki lagoon barrier coastline in Nigeria and its vulnerability to rising sea level. In Pro. Coastal Zone '91. American Society of Civil Engineers, p.2380-2393.

Awosika, L. F., (1991b). Offshore Avon Canyon west of the Niger delta: Sedimentary Processes and possible implications for Hydrocarbon Entrapment: In Proceeding *Nigerian Association of Petroleum Explorationist 9th Annual Conference*, Nov. 20 to 22, 1991. p. 17

Awosika, L. F., Gregory T. French; Robert J. Nicholls and Ibe, C. E., (1992). The Impacts of Sea Level Rise on the Coastline of Nigeria: In Proc. *IPCC Symposium on the Rising Challenges of the Sea*. Margaritta, Venezuela 14-19 March, 1992. p.123-154.

Awosika, L. F., Ibe, A. C. and Ibe. C. E., (1992). Geomorphic features of the Gulf of Guinea Shelf. In Pro. *International Geological Congress*, Kyoto, Japan. Vol.1 of 3 pp. 42.

Awosika L. F., and Adegbie T.A. (1993). Assessment of some sediment, foraminifera and current mooring data collected during the 100 day ROPME/IOC/NOAA cruise in the Persian Gulf: Implications for transport dynamics in the ROPME sea area. In proc. *International conference on the results of the ROPME/IOC/NOAA cruise in the ROPME Sea Area*. Kuwait, Jan.1993.

Awosika, L. F., A. C. Ibe and C. E. Ibe (1993). Anthropogenic activities affecting sediment load balance along the West African coastline. *Coastlines of western Africa, Coastal zone 93. Ed. Larry Awosika, Chidi Ibe and Peter Schroder*. Pub. American Association of civil engineers N.Y., N. Y.

Ibe, A.C., Awosika, L.F. and Ibe, C. E. (1993) Factors responsible for varying granulometric characteristics of sediments from the western Nigeria coastline. *Coastlines of western Africa, Coastal zone 93. Ed. Larry Awosika, Chidi Ibe and Peter Schroder*. Pub. American Association of civil engineers N.Y., N. Y.

Dublin-Green, C. O., and Awosika L. F. (1993). Recent benthic Foraminifera as sedimentation tool in the Nigerian coastal environment. *Coastlines of western Africa, Coastal zone 93. Ed. Larry Awosika, Chidi Ibe and Peter Schroder*. Pub. American Association of civil engineers New York., New York.

Ojo, O, Awosika L. F. and Ibe, C. E, (1993). Implications of environmental dynamics for sustainable environment and resources of west and central Africa. *Coastlines of western Africa, Coastal zone 93. Ed. Larry Awosika, Chidi Ibe and Peter Schroder* Pub. American Association of civil engineers N.Y., N. Y.

Nicholls, R. J., Awosika, L. F., Niang-Diop, I, Dennis K. C. and French G. T. (1993). Vulnerability of West Africa to accelerated sea level rise. *Coastlines of western Africa, Coastal zone 93. Ed. Larry Awosika, Chidi Ibe and Peter Schroder.* Pub. American Association of civil engineers N.Y., N. Y.

Awosika, L. F. and Ibe Chidi (1993) Geomorphology and tourism related aspects of the Lekki barrier-lagoon coast in Nigeria, *In Tourism versus Environment: Case study for coastal areas.* Ed P.P Wong. Pub Kluwer Academic Publishers Dordrecht/Boston/London 1993.

Awosika, L. F. and Ibe, A. C. (1993). Geomorphology and littoral drift along the western Nigeria coastline. In proceedings *The Hilton head Island International coastal symposium.* V. 2. ed- P. Bruun.

Awosika, L. F., Ibe, A.C., Oyewo A. and Ibe, C.E.(1994). Navigational and surveying techniques employed during the first IOCEA cruise in the Gulf of Guinea. In proc. *International symposium on the results of the first IOCEA cruise in the Gulf of Guinea,* 17-20 May 1994. Pub Centre for Environment and Development in Africa. pp. 14-18.

Awosika, L. F. and Ibe, A. C (1994). Geomorphic features of the Gulf of Guinea shelf and littoral drift dynamics. In Proc. *International symposium on the results of the first IOCEA cruise in the Gulf of Guinea,* 17-20 May 1994. Pub Centre for Environment and Development in Africa. pp. 21-27.

Awosika, L. F., Collins, M. and Clay, A. T. (1994). Clay mineralogy variations in the Gulf of Guinea and implications for sediment transport dynamics. In Proc. *International symposium on the results of the first IOCEA cruise in the Gulf of Guinea,* 17-20 May 1994. Pub Centre for Environment and Development in Africa. pp. 99-103.

Folorunsho, R., Awosika, L. F. and Dublin-Green, C. O (1994). An assessment of river inputs into the Gulf of Guinea shelf. In Proc. *International symposium on the results of the first IOCEA cruise in the Gulf of Guinea,* 17-20 May 1994. pp. 163-172.

Awosika L. F., Folorunsho, R., and A. T Adegbie (1995). Regional and International Efforts at understanding Land Ocean- Atmosphere Interaction in the Gulf of Guinea Shelf of the Eastern Tropical Atlantic. In Proceedings *In the Tropical Ocean Global Atmosphere (TOGA) Programme.* pp. 205-209.

French G. T., Awosika, L. F. and Ibe, C. E. Sea Level rise and Nigeria (1995): Potential impacts and consequences. Journal of Coastal Research Special issue No. 14. pp. 224-242.

Awosika, L. F., Dublin-Green, C. O. and Oyewo E. O (1996). Nearshore littoral drift cells along the Nigerian Coast: Implications for management of Petroleum industry wastes and oil spills. In Proc. 8th *Biennial International Seminar on the Petroleum Industry and the Nigerian Environment.* Nov. 17-21 1996. Port Harcourt, Nigeria.

Awosika L. F. (1998). Niger Delta Coastal Dynamics and Implications for Predicting Delta Stability. In Proc *World Delta Symposium.* New Orleans, Louisiana, USA Aug. 23-28, 1998.

Maria Snoussi and Larry Awosika (1998). Marine Capacity building in North and West Africa. *Marine Policy Vol. 22, No.3* Pub. By Elsevier Science Ltd Great Britain. p.209-215.

Awosika, L. F., and Magnus Ngoile (1998). State of the Coastal and Marine Environment of sub-Sahara Africa. (Background pub London October 1998). In pro. *Advisory Committee on the Protection of the Sea (ACOPS) and UNEP Conference on the Cooperation and Protection of the Marine and Environment of the sub-Sahara Africa, Cape Town.* October 1998.

Awosika, L. F. and Marone Edwardo (2000) Scientific needs to assess the health of the ocean in coastal areas. A perspective of developing countries. Pub Elsevier. *Ocean and Coastal Management* 43 (2000) p781-791.

Awosika, L. F., Osuntogun, N.C., Oyewo, E. O., Awobamise, A, (2001) Development and Protection of the Coastal and Marine Environment in Sub Sahara Africa: *Report of the Nigeria Integrated Problem Analysis*. 142pg.

Awosika, L. F. (2001). Cooperation between intergovernmental oceanographic commission (IOC) and institutions established by UNCLOS with particular emphasis on the Commission on the Limits of the Continental Shelf (CLCS). Paper presented at the *ABELOS first meeting of the advisory body of experts on the law of the sea (ABE-LOS)* (Paris, 11-13 June 2001). IOC/ABE-LOS-13 ADD 1 (http://ioc.unesco.org/oceansciences/unclos/ABE-LOS%20I%20-engl/ABE-LOSI3%20add%201.doc)

Awosika, L. F., and Lombardi, D (2003). Establishing the infrastructure for Article 76 and beyond: a holistic approach. Paper presented at the *CARIS International Conference, Norfolk*, United States 2003. 14 p.

Awosika, L. F. (2004) Capacity building needs and barriers to implementation: implications for the protection and sustainable use of oceans and coasts in developing countries. Paper presented at the *Workshop on Capacity Building for the Protection and Sustainable Use of the Oceans and Coast, Washington, D. C.* November 8-9, 2004. Sponsored by the Bureau of Intelligence and Research, US Department of State in cooperation with the Bureau of Oceans and International Environmental and Scientific Affairs, US. Department of States and the Ocean Studies Board, National Academy of Sciences. Washington, D. C. (In Press).

Awosika, L. F, (2004) Coastal oceanographic processes and their impacts on the Nigerian coastal and marine environment. *Sustainable Management of the Nigeria Environment*. Ed. M. F. A Ivbijaro. University of Ibadan Press.

Awosika, L. F, and Folorunsho, R (2005a). Forthnightly Oscillating surface current patterns observed from Davies drifter offshore the Western Niger Delta Nigeria. In Proc *Operational Oceanography and Meteorology for the 21st Century. Joint Commission for Oceanography and Meteorology Scientific Conference* Halifax NS Canada

Awosika, L. F, and Folorunsho, R (2005b). Natural and anthropogenic hazards in the African coastal and ocean environment: need for holistic and pragmatic early warning system and management approach. In Proc *Ocean 2005* Washington DC 20-25 September 2005.

Consultancy reports

Led a total of 20 consultancy services to oil companies, Governments, International companies on marine related, geological and geophysical projects.

Books authored or co-authored

Principal-co author: Global Climate Change and the Rising Challenge of the Sea. Intergovernmental Panel on Climate Change Response Strategies Working Group May 1992.

Editor — Coastlines of Western Africa (Ed. Larry Awosika, Chidi Ibe and P. Scroeder). Published by the American Association of Civil Engineers New York, New York. 1993. 399p.

Co-author — Implications of Climatic Changes and Sea Level Rise on the Niger Delta, Nigeria. A report for UNEP.

Co-author — Global Climate Change and the Rising Challenges of the Sea. Report of the Coastal Zone Management Subgroup. Intergovernmental Panel on Climate Change Response Strategies Working Group May 1992.

Co-Author — Management Arrangements for the Development and Implementation of Coastal Zone Management Programmes. International Conference on Coastal Zone Management World Coast. The Netherlands 1-5 November 1993.

Near shore Dynamics and Sedimentology of the Gulf of Guinea. Ed. A. Chidi Ibe, Larry Awosika and Kouame Aka 1998. 211p. Proceedings of the First Symposium on the IOCEA cruise in the Gulf of Guinea 1995.

Tortel and Awosika L. F. (1998) — Oceanographic Survey Techniques and Living Resources Assessment Methods. Intergovernmental Oceanographic Commission Manuals and Guides No. 32. 1996.34p.

A Sea of Troubles (2001). IMO/FAO/UNESCO/WMO/WHO/IAEA/UN/UNEP (GESAMP) Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection. GESAMP Reports and Studies No.70. Printed by RID-Arendal for the United Nations Environment Programme. 35p.

Protecting the Oceans from Land based activities (2001). IMO/FAO/UNESCO/WMO/WHO/IAEA/UN/UNEP (GESAMP) Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection. GESAMP Reports and Studies No. 1. Printed by RID-Arendal for the United Nations Environment Programme. 162p.

International oceanographic research cruises

Participated in a multi-disciplinary research cruise on board R/V CORNIDE SAVEDRA in the Balearic continental shelf western Mediterranean code-named GEOCARBAL 85 (May 12 to June 10, 1985). Objective of cruise was to establish the bio-sedimentological and geophysical models of the Balearic shelf using 3.5khz seismic and side scan.

Participated in the cruise Gravity survey of the Gulf of Guinea shelf on board R/V STARELLA 24 September to 6 October 1987. A United States of America/Nigeria Collaborative project funded by the U.S. Government.

Cruise Leader: First Intergovernmental Oceanographic Commission of UNESCO cruise in the Gulf of Guinea, on board NIOMR R/V SARKIM BAKA 10-25 Oct. 1989. Objectives of cruise were to collect hydrodynamic and marine geological data affecting coastal erosion in the west and Central African Region.

Cruise leader on a total of eight sea cruises since 1984 in the Nigerian continental shelf on board NIOMR's R/Vs OKION and SARKIM BAKA.

Special proficiency

Versatility in use of micro-computers for word processing, Electronic mail communication, analysis and evaluation of oceanographic data and information (e.g. Ocean-PC, GIS etc.)

Vessel navigation using trisponder, syledis, satellite sat nav, GPS, Radar and other conventional methods.

Experienced in deployment of buoys, current meters, wave riders, tide gauges and other oceanographic equipment.

References

Dr. B. Ezenwa
Executive Director/CEO
Nigerian Institute for Oceanography and Marine Research
P.M.B. 12729, Victoria Island, Lagos
Fax: 234-1-2619517.

Dr. Youri Ilionen
Executive Director
International Ocean Institute
P.O. Box 3
BZIRA GZR 01, Malta
Tel: 356 344528, Fax: 356 346502
E-mail: ioimla@kemmunet.net.mt

Mr. Adekunle Adesida
Shell Petroleum Nigeria Limited
Marina
Lagos
Tel: 08055530663

Harald Brekke (Norway)

Date of birth: 22 May 1953

Place of birth: Vik i Sogn, Norway

Education

1978-1983 University of Bergen, Norway — Cand. real. degree (Masters/Ph. D. equivalent) in hard rock geology

1975-1977 Agder Regional College, Kristiansand, Norway — Additional exams in mathematics, statistics and computer programming as well as exams in philosophy and physics

1973-1975 Agder Regional College, Kristiansand, Norway — College degree in analytical chemistry

Employment record

1973 Teacher of mathematics at Chongwe Secondary School, Zambia

1975 Teacher of chemistry at Agder Regional College, Norway

1980-1983 Part-time research assistant at the Geological Institute, University of Bergen, Norway

1983-1984 Full-time research assistant at the Geological Institute, University of Bergen, Norway

1984- Senior Geologist in the Exploration Department of the Norwegian Petroleum Directorate, Stavanger, Norway. Areas of responsibility:

- Geological/geophysical mapping of the Norwegian continental shelf
- Petroleum resource assessment on regional and national scale
- Planning and development of resource assessment methods and tools
- Evaluation of company applications for new exploration licences
- Providing technical advice to Ministry of Petroleum and Energy
- Represented the Norwegian Petroleum Directorate in various geoscientific programmes involving universities and industry
- Project coordination
- Cruise Leader for marine geophysical data acquisition in the Arctic Ocean
- External lectures on the geology and prospectivity of the Norwegian continental shelf
- Advisor to the Namibian State Oil Company under the Norwegian Foreign Aid Programme

	– Advisor to Sri Lanka on the delineation of the continental shelf under the Norwegian Foreign Aid Programme – Advisor to the Republic of Seychelles on the delimitation of the continental shelf
1996-	Technical advisor to the Norwegian Government on the delineation of the Norwegian continental shelf
1997-2002	Member of the first Commission on the Limits of the Continental Shelf
2002-	Member of the sitting Commission on the Limits of the Continental Shelf
2000-	Member of national committee on the delineation of the continental shelf of Norway

Miscellaneous qualifications

1983	Qualified as university lecturer in geology upon appointment by university commission set up by the Rogaland College, Norway
1990	Regular scientific referee for the international journal of the Norwegian Geological Society (*Norsk Geologisk Tidsskrift*)
1994	Appointed external examiner at the Institute of Geology and Mineral Resources Engineering, Norwegian Institute of Technology, University of Trondheim, Norway
1995	Member of the Group of Experts convened in September 1995 by the United Nations Secretariat to prepare for the Establishment of the Commission on the Limits of the Continental Shelf. Member of the core group within the Group of Experts that worked out a draft list of scientific documentation required for making submissions concerning the outer limits of the continental shelf
2001-	President of the Geological Society of Norway

Law of the Sea record

1995	Member of the Group of Experts convened in September 1995 by the United Nations Secretariat to prepare for the Establishment of the Commission on the Limits of the Continental Shelf. Member of the core group within the Group of Experts that worked out a draft for a list of scientific documentation required for making claims for the outer limits of the continental shelf.
1997-2006	Member of the sitting Commission on the Limits of the Continental Shelf (CLCS), elected by the Sixth Meeting of States Parties to the 1982 United Nations Convention on the Law of the Sea in New York 13 March 1997.

1997-2006	As member of the CLCS assumed the following responsibilities: – Chaired one of six working groups set up to formulate the Scientific and technical Guidelines of CLCS – Chaired the working group that drew up the final chapter on the delineation of the outer limits of the continental shelf based on sediment thickness – Chaired the working group that drew up the final plan for a five-day training course to assist states in preparing their submissions to CLCS – Chaired the Editorial Committee in 2002-2004 when the Commission undertook a major revision of the Rules of Procedure of the Commission – Chaired the Training Committee since 2004 – Expert advisor to the Sub-commission set up to consider the Submission made by Brazil, regarding seismic interpretation and sediment thickness analyses – Chairing the Sub-commission set up to consider the submission made by Australia – Chairing the Sub-commission set up to consider the submission made by New Zealand – Scientific co-editor of the DOALOS Training Course on the delineation of the continental shelf and preparation of a submission to the CLCS – Prepared and presented the introductory lecture on UNCLOS and Article 76 in the Open Meeting of the CLCS in New York in May 2000 – Contributed actively in other working groups within CLCS – Provide technical assistance to the Republic of Seychelles
1997-2006	Presented various lectures on continental shelf issues, including: – A lecture on statistical uncertainty as regards the exact position of the outer limits of the continental shelf, held at the International Conference on Technical Aspects of Maritime Boundary Delineation and Delimitation arranged by the International Hydrographic Organization in Monaco in 1999. Mr Brekke was one of five members of the Commission who held lectures at the conference. – A lecture on the role of the Commission at the open Conference on the Continental Shelf and its Resources, arranged by the new Law of the Sea Institute in Reykjavik in October 2000.

- A lecture on questions related to the provisions on the delineation of the outer limits of the continental shelf based on sediment thickness at the international Continental Shelf Seminar 2000 organized in Buenos Aires in November 2000 by the Argentinean national committee for the delineation of the continental shelf.
- Invited as guest lecturer to the Regional Training Workshop on the Delineation of the Outer Limits of the Continental Shelf arranged by the Government of Malaysia in Kuala Lumpur 2002.
- Invited lecture on the ridge provisions of article 76 of the UN Convention on the Law of the Sea in the Twenty-Seventh Annual Conference of the Center for Oceans Law and Policy, University of Virginia School of Law co-hosted with the Law of the Sea Institute of Iceland arranged in Reykjavik 2003.
- Invited as guest lecturer to the annual course on the continental shelf at the Southampton Oceanography Centre in 2001, 2002 and 2003. This was the first course of its kind to be arranged in accordance with CLCS/24/Corr.1.
- Invited lecturer in the regional training courses for the regions of Indian Ocean, African Atlantic Coast and South America arranged by DOALOS in cooperation with the Governments of Sri Lanka, Ghana and Argentina, respectively (see section above).

List of publications

Brekke, H. 2000. *The tectonic evolution of the Norwegian Sea Continental Margin with emphasis on the Vøring and Møre Basins*. In: A. Nottvedt et al. (Editors), Dynamics of the Norwegian Margin. Geological Society, London, Special Publications, 167: 327-378.

Brekke, H. & Riis, F. 1987. *Tectonics and basin evolution of the Norwegian shelf between 62 N and 72 N*. Norsk Geologisk Tidsskrift, vol 67, 295-322.

Brekke, H. & Solberg, P. O. 1987. *The Geology of Atløy, Sunnfjord, western Norway*. Norges geologiske undersøkelse Bulletin, vol 410, 73-94.

Brekke, H. and Kalheim, J.E 1996. *The NPD Assessment of the Undiscovered Resources of the Norwegian Continental Shelf — Background and Methods*. In Dore, T. (Ed). Quantification and Prediction of Hydrocarbon Resources. Norwegian Petroleum Society, Special Publication No 6. Amsterdam, Elsevier, 91-104.

Brekke, H., Furnes, H., Nordås, J. and Hertogen, J. 1984. *Lower Palaeozoic convergent plate margin volcanism on Bømlo, SW Norway, and its bearing on the tectonic environments of the Norwegian Caledonides*. J. Geol. Soc. London, vol 141, 1015-1032.

Brekke, H., Kalheim, J.E., Riis, F., Egeland, B., Blystad, P., Johnsen, S. and Ragnhildstveit, J. 1992. *Two-way time map of the unconformity at the base of the*

Upper Jurassic (north of 69°N) and the unconformity at the base of the Cretaceous (south of 69°N), offshore Norway, including the main geological trends onshore. Scale 1:2 mill. NPD Continental Shelf Map No. 1. The Norwegian Petroleum Directorate/The Geological Survey of Norway.

Brekke, H., Amaliksen, K.G., Færseth, R.B., Jorde, K., Naterstad, J., Nilsen, E., Nordås, J., Ragnhildstveit, J. and Ree, R. 1993. *Bømlo bedrock map 1114 2, 1:50 000, black and white edition*. Geological Survey of Norway.

Brekke, H., Dahlgren, S., Nyland, B. and Magnus, C. 1999. *The prospectivity of the Vøring and Møre basins on the Norwegian Sea continental margin*. In: A. J. Fleet and S. A. R. Boldy (Editors), Petroleum Geology of Northwest Europe: Proceedings of the 5th Conference. Geological Society, London, 261-274.

Brekke, H., Sjulstad, H. I., Magnus, C. and Williams, R. W. 2001. *Sedimentary environments offshore Norway — an overview*. In: O.J. Martinsen and T. Dreyer (Editors), Sedimentary Environments Offshore Norway — Palaeozoic to Recent. NPF Special Publication No 10, Elsevier, Amsterdam, 7-37.

Brekke, H. and Symonds, P. A. 2004. The Ridge Provisions of Article 76 of the UN Convention on the Law of the Sea. In: Nordquist, M. H., Norton Moore, J. and Heidar, T.H. (eds), *Legal and Scientific Aspects of Continental Shelf Limits*. Martinus Nijhoff Publishers, 169-199.

Andersen, T. B., Furnes, H., Brekke, H., Sturt, B. A. and Naterstad, J. 1984. *The Tørvikbygd Ophiolite — a newly discovered ophiolite fragment with an unconformable cover sequence in the central Hardanger area, West Norway*. Norsk Geologisk Tidsskrift, vol 64, 69-73.

Blystad, P, Brekke, H, Færseth, R.B, Larsen, B.T., Skogseid, J. and Tørudbakken, B. 1995. *Structural elements of the Norwegian Continental Shelf. Part II: The Norwegian Sea Region*. NPD-Bulletin No. 8. The Norwegian Petroleum Directorate.

Eidvin, T., Brekke, H., Riis, F. and Renshaw, D. K. 1998. *Neogene and Upper Paleogene Stratigraphy on the Mid-Norwegian Continental Shelf*. Norsk Geologisk Tidsskrift vol. 78, 125-151.

Eidvin, T., Jansen, E., Rundberg, Y., Brekke, H. and Grogan, P. 2000. *The upper Cainozoic of the Norwegian continental shelf correlated with the deep sea record of the Norwegian Sea and the North Atlantic*. Marine and Petroleum Geology, 17: 579-600.

Furnes, H,. Brekke, H., Nordås, J. and Hertogen, J. 1986. *Lower Palaeozoic convergent plate margin volcanism on Bømlo, SW Norwegian Caledonides. Geochemistry and petrogenesis*. Geol. Mag. vol 123, 123-142.

Kalheim, J.E. and Brekke, H 1996. *The Usefulness of Resource Analysis in National Economic Planning - Examples From the Norwegian Shelf*. In Dore, T.(Ed). *Quantification and Prediction of Hydrocarbon Resources*. Norwegian Petroleum Society, Special Publication No 6, Amsterdam, Elsevier, 313-324.

Larsen, R.M., Brekke, H., Larsen, B.T. and Talleraas, E. (Editors), 1992. *Structural and Tectonic Modelling and its Application in Petroleum Geology*. Norwegian Petroleum Society, Special Publication No. 1. Amsterdam, Elsevier, p 549.

Nordås, J., Amaliksen, K. G., Brekke, H., Suthren, R., Furnes, H., Sturt, B. A. and Robins, B. 1985. *Lithostratigraphy and petro-chemistry of Caledonian rocks on Bømlo, SW Norway*. In: Gee, D. G. and Sturt, B. A. (Eds), *The Caledonian Orogen — Scandinavia and related areas*. Wiley, New York, 679-692.

Padget, P. and Brekke, H. 1996. *Arendal, Bedrock Map*. Scale 1:250 000. Norwegian Geological Survey.

Symonds, P.A. and Brekke, H. 2004. *A Scientific Overview of Ridges Related to Article 76 of the UN Convention on the Law of the Sea*. In: Nordquist, M. H., Norton Moore, J. and Heidar, T.H. (eds), *Legal and Scientific Aspects of Continental Shelf Limits*. Martinus Nijhoff Publishers, 141-167.

Mitja Bricelj (Slovenia)

Date and place of birth: 4 April 1959, Ljubljana, Slovenia

Current position

Secretary on the Ministry of the Environment and Spatial Planning Republic of Slovenia and University of Primorska/Litoral, Koper, Slovenia, invited expert for the Integrated Coastal Zone Management (2005-)

Languages

English, Slovenian, Croatian (fluent), German, Russian (fair)

Education:

1983	B.Sc., Environmental Protection, Faculty of Arts, University of Ljubljana
1990	M.Sc., Geographical aspects of river basin management, Faculty of Arts, University of Ljubljana
2007	Ph.D., Integrated water resources management, Faculty of Arts, University of Ljubljana

Professional positions

2005-	Expert for Integrated Coastal Zone Management on University of Koper
1990-	Secretary on Ministry for Environment and Spatial Planning
1985-1990	Research Assistant, Institute for Geography University of Ljubljana

International training

1984	Short-term research visit (three weeks) to Japan: Tokyo University; How to Fight Marine Pollution
1993	Short-term visit to UK: National River Basin and Coastal Authority
1994-1995	MBA International School, Brdo Slovenia
2002	Contingency Planning, REMPEC (MAP-UNEP) course, Malta
2002-2006	Coastal Area Management Planning, PAP/RAC courses, Split/Croatia, Koper/Slovenia and MAP/UNEP Athens

Main research activities

Water, coastal and marine environment as habitat and resource for socioeconomic development. Focus on interactions water/coastal/marine environment — economic use — impacts. Importance of regional and sub-regional characteristics for the sustainable management of coastal and marine resources. Total of 18 scientific publications, 30 presentations on expert congresses and symposia.

Professional activities

Member of the Permanent Slovenian-Croatian-Italian Commission for the protection of Adriatic and its coastal Areas (1993-)

Member of Commission for the Protection Danube river (1998-)

Member of Adriatic-Ionian Initiative (2000-)

Member of Mediterranean Commission for Sustainable Development /MAP-UNEP (2003-)

Member of the Commission for the Sava River Basin (2005-)

Coordinator of Coastal Area Management Plan Slovenia (MAP/UNEP 2003-2007)

Slovene Coordinator for Contingency Plan for North Adriatic (REMPEC, 2004)

President of the Mediterranean Action Plan (MAP/UNEP) Bureau, Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols (2005-)

Membership in professional societies

1983-	Geographical Society of Ljubljana
1984-	Geographical Society of Slovenia (President, 2004-)

Galo Carrera Hurtado (Mexico)

Birthdate: 19 August 1953

Languages: Equally bilingual in English and Spanish, and some experience in French.

University education

B. Geophys. Eng. studies from 1971 to 1976 Faculty of Engineering, National Autonomous University of Mexico, Mexico D.F.

Dipl. Phil. studies from 1977 to 1978 School of Philosophy. Panamerican University, Mexico D.F.

M. Sc. Eng. studies from 1980 to 1982 Department of Geodesy and Geomatics, University of New Brunswick, Fredericton, New Brunswick, Canada.

Ph.D. studies from 1982 to 1985 Department of Geophysics, University of Toronto, Toronto. Ontario, Canada.

Visiting Scientist during 1986 at the Bedford Institute of Oceanography. Dartmouth, Nova Scotia, Canada.

Areas of concentration: geodesy, hydrography, geophysics and the law of the sea.

Seminars and courses

1969-1971	Diploma in English awarded by the Mexican-North American Institute of Cultural Relations. Mexico. D.F.
1977	Seminar on the Theory of Leadership and Organisational Productivity. Organised by the College of Civil Engineers of Mexico, Mexico D.F., 15-17 August.
1978	Course on Gravimetry, Cartographic School of the Interamerican Geodetic Survey, Fort Clayton, Panama, 8-26 May.
1985	Seminar on the Aerotriangulation Program Space-M, University of Toronto, Canada, 18-19 February.
1985	Seminar on the Global Positioning System (GPS), University of New Brunswick. Canada, 15 June.
1990	French Immersion Course. Henson College, Dalhousie University, Halifax. Nova Scotia, Canada, 5-22 February.
1992	Partnership with the Canadian International Development Agency in the Developing World, Sheraton Hotel, Halifax, Nova Scotia. Canada, 3 February.
1992	High Performance (Parallel) Alliant Fortran Programming. High Performance Computing Centre, Halifax. Nova Scotia, Canada. 4-8 May.
1994	High Impact Presentations, Dale Carnegie Training, Dartmouth, Nova Scotia. Canada, 16-17 March.

1995	Developing Common Desktop Environment (CDE) Applications, Solaris Developer and Networking Conference. Moscone Centre, San Francisco, California. USA. 23-24 May.

Scholarships

1982-1984	Academic Scholarship. National Council of Science and Technology, Mexico.
1984-1985	Reginald Blyth Scholar. Department of Geophysics, University of Toronto, Canada.

Awards and distinguished posts

1979	Second Place in the Second National Contest of Scientific Research for Young Scientists. Contest organised by the National Autonomous University of Mexico.
1989	Vice-President of the Canadian hydrographic Association.
1988-1989	Chairman of the Special Study Group on Geodetic Aspects of International Maritime Boundary Delimitation of the Canadian Hydrographic Association.
1992-1993	Executive Board Member of Hypercomp, a High Performance Computing Association. Halifax, Nova Scotia, Canada.
1989-1999	Secretary of the Committee on Geodetic Aspects of the Law of the Sea (GALOS) of the International Association of Geodesy.
1992-1996	Associates' Director and Executive Board Member, Oceans institute of Canada, Halifax, Nova Scotia, Canada.
1992-present	National Representative to the International Commission on Recent Crustal Movements (ICRCM) of the International Association of Geodesy.
1995-present	Honorary Consul of Mexico in Nova Scotia, Canada.
1996-2001	Honorary member of the Committee on the Geodetic Reference System for South America (Sistema de Referencia Geodésico para America del Sur, SIRGAS).
1997-1999	Member of the Advisory Council of the Faculty of Engineering, National Autonomous University of Mexico (FI-UNAM).
1997-2001	Founding Member, Halifax - Mexico Community Alliance.
1997-2002	Elected member, Commission on the Limits of the Continental Shelf.
1998-2001	Editor, Journal of Marine Geodesy. An International Journal of Ocean Surveys, Mapping, and Sensing.
2000	Guest professor. Second Institute of Oceanography, State Oceanic Administration, Hangzhou, People's Republic of China.

2000	Fellow of the International Association of Geodesy (IAG). Appointed by decision of the IAG Executive Committee at its meeting in Nice. 28 April.
2002-2007	Elected member. Legal and Technical Commission of the International Seabed Authority.

Employment

1977-1978	Directorate of Studies of the National Territory (DETENAL) National Institute of Statistics. Geography and informatics (INEGI). Mexico.
1978-1980	Research Assistant, Institute of Engineering, National University of Mexico. Associate Professor, Faculty of Engineering. National University of Mexico.
1982-1984	Teaching Assistant in the Geodesy I and II courses, Dept. of Survey Science. University of Toronto. Canada. Instructor: Dr. Petr Vanicek Research Assistant in Geodesy, University of Toronto, Canada.
1982-1983	Translator English-Spanish, Book "Geodesy: The Concepts" by P. Vanicek and E. Krakiwsky, North Holland, Amsterdam, 651 pp.
1984-1985	Teaching Assistant in the Geodesy I and II courses, Dept. of Survey Science, University of Toronto, Canada. Instructor: Dr. Attallah M. Wassef
1986-1987	Visiting Scientist with the Canadian Hydrographic Service at the Bedford Institute of Oceanography, Dartmouth. Nova Scotia. Canada.
1987-present	External scientific consultant with the following organisations (in chronological order): Canadian Hydrographic Service, Fisheries and Oceans. Canada; International Centre for Ocean Development, Halifax, Nova Scotia. Canada; Oceans Institute of Canada. Halifax, Nova Scotia, Canada; Geodetic Survey Division. Natural Resources, Canada; Geological Survey of Canada, Natural Resources, Canada; South Pacific Forum Fisheries Agency, Honiara, Solomon Islands; International Hydrographic Organization, Monaco; University of New Brunswick, Fredericton. New Brunswick. Canada; Commonwealth Secretariat. London, United Kingdom; Faculty of Engineering. National Autonomous University of Mexico, Mexico; Ministry of Foreign Affairs, Kingston, Jamaica; National Institute of Statistics, Geography, and Informatics (INEGI). Mexico; Brazilian Institute of Geography and Statistics. Rio de Janeiro. Brazil; Department of Foreign Affairs, Manila, Philippines; Department of Foreign Affairs, St. George. Grenada; Department of Foreign Relations (SRE). Mexico; Ministry of Land Use and Habitat, Victoria, Mahe, Seychelles; Ministry of Foreign Affairs, Muscat, Oman; and Ministry of Foreign Affairs, Georgetown, Guyana.

1989-1992	External lecturer with the International Maritime Law Institute, Valleta. Malta.
1989-1992	External lecturer with the Marine Management Program. Dalhousie University, Halifax, Nova Scotia. Canada.
1989-present	Director and founder of Geometrix - Geodetic and Hydrographic Research Inc a federally incorporated Canadian company that specializes in scientific research.
1994-1995	Coordinator and professor of Marine Technology, Marine Management Program, Dalhousie University, Halifax, Nova Scotia, Canada.
1994-present	Annual course co-ordinator and lecturer with the Continuing Education Division of the Faculty of Engineering, National Autonomous University of Mexico, Mexico.

Professional affiliations

1985-1998	Member of the American Geophysical Union
1988-1992	Member of the Canadian Hydrographic Association
1990-2000	Associate of the Oceans Institute of Canada, Halifax, Nova Scotia Canada

Major field surveys

1993	Organiser and Manager of *Operacion 70.* A Global Positioning System survey of over 40.000 points measured In the States of Mexico. Morelos, and Guerrero from 15 September to 15 October for the National Institute of Statistics. Geography and Informatics. Mexico.
1998	Organiser and geodesist for the Geodetic Positioning Project of the Grenadian Archipelagic Baseline System. A Global Positioning System survey of the archipelagic straight baseline system encompassing the islands of Grenada from 9-14 February for the Government of Grenada.

Research endeavours

Geodetic and hydrographic methodologies for international maritime boundary delimitation

Scientific and technical determination of the outer limits of the continental shelf

Optimum design of geodetic networks for positioning and geodynamic applications

Statistical analysis of information from sea and lake water level gauges

Investigation of mathematical models for the determination of movements of the earth's crust

Activities in the Commission on the Limits of the Continental Shelf

1997 Elected member by the Sixth Meeting of States Parties to the United Nations Convention on the Law of the Sea, United Nations Headquarters. New York. NY. : 13 March.

1997 First Session of the Commission on the Limits of the Continental Shelf. United Nations headquarters, New York, NY, USA. 15-20 June (CLCS/1).

Contributor to the development of the Rules of Procedure (CLCS/3).

1997 Second Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York, NY, USA, 2-12 September (CLCS/4).

Contributor to the development of the Rules of Procedure (CLCS/3/Rev.1).

Chairman of the Open Ended Group on the Modus Operandi (CLCS/L.3).

1998 Third Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York, NY, USA, 4-15 May (CLCS/7).

- Chairman, Open Ended Group on Confidentiality - Annex II to the Rules of Procedure;
- Chairman, Research Group on Geodesy;
- Chairman, Editorial Committee of the Scientific and Technical Guidelines;
- Chairman of the Editorial Committee Working Groups on;

1. Introduction
2. Entitlement to and delineation of the outer limits of the continental shelf
3. Geodetic Methodologies and the outer limits of the continental shelf
10. References and bibliography

Annex I. List of International Organisations.

- Member of the Editorial Committee Working Groups on:

4. The 2.500 m isobath
5. Foot of the slope determined as the point of maximum change in the gradient at its base
6. Foot of the slope determined by evidence to the contrary to the general rule
9. Information on the outer limits of the continental shelf.

Annex II. Flowcharts, tables, and illustrations summarizing the procedure for establishing the outer limits of the continental shelf.

1998 Fourth Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York, NY, USA, 31 August-4 September (CLCS/9).

- Chairman. Open Ended Group on Confidentiality - Annex II to the Rules of Procedure;
- Chairman. Editorial Committee of the Scientific and Technical Guidelines (CLCS/11).

1999 Fifth Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters New York. NY. USA, 3-14 May (CLCS/12).

- Chairman, Editorial Committee of the Scientific and Technical Guidelines (CLCS/11).
- Member, Informal Working Group on Training.

1999 Sixth Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York. NY, USA, 30 August-3 September (CLCS/18).

- Chairman, Editorial Committee of the Scientific and Technical Guidelines.
- Member of the Working Group on Annex II. Flowcharts, tables, and illustrations summarizing the procedure for establishing the outer limits of the continental shelf.
- Member, Working Group on Training (CLCS/11/Add.1).

1999 International Conference organised by the Advisory Board on Geodetic, Hydrographic and Oceanographic Aspects of the Law of the Sea of the International Hydrographic Organization, International Association of Geodesy and Intergovernmental Oceanographic Commission on Technical Aspects of Maritime Boundary Delineation and Delimitation, Including UNCLOS Article 76 Issues. International Hydrographic Bureau, Montecarlo, Principality of Monaco. 9-10 September.

- ABLOS Session Convenor, Chairman, and Speaker, Invited Session of the Commission on the Limits of the Limits of the Continental Shelf:

  Carrera, G. (1999). Wide Continental Margins of the World: A Survey of Marine Scientific Requirements Posed by the Implementation of Article 76 of the United Nations Convention on the Law of the Sea.

  Carrera, G. (1999). The impact of the seabed roughness on the location of the outer limits of the extended continental shelf.

  Albuquerque, A. and G. Carrera (1999). Information on the outer limits of the extended continental shelf.

2000 Seventh Session of the Commission on the Limits of the Continental Shelf United Nations Headquarters. New York, NY, USA, 1-5 May (CLCS/21).

- Chairman, Editorial Committee (CLCS/22).
- Member, Working Group on Training.
- Chairman, Standing (five-member) Committee on Confidentiality.
- Convener, Co-Chairman and Speaker. Open Meeting of the CLCS. United Nations Headquarters. New York, NY. USA. 1 May.

Astiz, P.O. and G. Carrera (2000). Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf: Part I. Chapters 1 to 3. Open Meeting of the CLCS.

Srinivasan, K.R. and G. Carrera (2000). Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf: Part II, Chapters 4 to 6. Open Meeting of the CLCS.

Juracic, M. and G. Carrera (2000). Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf: Part III, Chapters 7 to 9.

Carrera, G. (2000). Geographic scope and scientific challenges posed by Article 76 of the United Nations Convention on the Law of the Sea.

Carrera, G. and A. Albuquerque (2000). An outline for the preparation of a national submission to the Commission on the Limits of the Continental Shelf.

2000 Eighth Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York. NY. USA. 2 August-1 September (CLCS/25).

- Chairman, Standing (five-member) Committee on Confidentiality. Revision of Annex II to the Rules of Procedure (CLCS/3/Rev.3).
- Chairman of the Editorial Committee. Outline for a five-day training course for delineation of the outer limits of the continental shelf beyond 200 nautical miles and for preparation of a submission of a coastal State to the Commission on the Limits of the Continental Shelf (CLCS/24).
- Member, Working Group on Training.

2001 Ninth Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York. NY, USA. 21-25 May (CLCS/29).

- Chairman, Standing five-member Committee on Confidentiality. Corrigendum (CLCS/3/Rev.3/Corr.1).
- Chairman of the Editorial Committee. Internal Procedure of the Subcommission of the Commission on the Limits of the Continental Shelf (CLCS/L.12).
- Member, Working Group on Training.

2002 Tenth Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters. New York, NY, USA, March 25-April 12 (CLCS/32)

- Member, Sub-commission on the limits of the continental shelf to consider the presentation by the Russian Federation.
- President, Sub-commission on the limits of the continental shelf to consider the presentation by the Russian Federation.
- Member, Working Group on Training.
- Co-editor, Manual on training of the Continental Shelf. Division of Oceans and the Law of the Sea, UN.

2002 Working Session of the Sub-commission on the limits of the Continental Shelf. United Nations Headquarters, New York, NY, June 10-14 (CLCS/)

- President, Sub-commission on the limits of the continental shelf to consider the presentation by the Russian Federation.
- Recommendations of the CLCS in relation with the presentation by the Russian Federation made on December 20, 2001, concerning the information on the outer limits suggested of its continental shelf beyond 200 nautical miles.
- Recommendations prepared by the sub-commission of the CLCS established for the consideration of the presentation by the Russian Federation, adopted by the Sub-commission on June 14, 2002, and submitted for approval of the CLCS.

2003 Twelfth session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York, NY, April 28-May 2 (CLCS/36).

2003 Thirteenth session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York, NY, April 26-30 (CLCS/39).

2004 Fourteenth Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York, NY, August 30-September 3 (CLCS/42).

- President, Sub-commission on the limits of the continental shelf to consider the presentation by Brazil.

2004 Fifteenth Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York, NY April 4-22, (CLCS/44).

- President, Sub-commission on the limits of the continental shelf to consider the presentation by Brazil.

2005 Sixteenth Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York, NY August 29-June 16, (CLCS/48).

- President, Sub-commission on the limits of the continental shelf to consider the presentation by Brazil.

2005 Seventeenth Session of the Commission on the Limits of the Continental Shelf. United Nations Headquarters, New York, NY March 20-April 21, (CLCS/50).

- President, Sub-commission on the limits of the continental shelf to consider the presentation by Brazil.

2006 Eighteenth Session of the Commission on the Limits of the Continental Shelf. United nations Headquarters, New York, NY, August 21-September 15, (CLCS/xx).

- President, Sub-commission on the limits of the continental shelf to consider the presentation by Brazil.

Activities in the Legal and Technical Commission of the International Seabed Authority

2001 Elected member for the period 2002-2007 by the Council of the International Seabed Authority represented by States Parties to the United Nations Convention on the Law of the Sea. International Seabed Authority Headquarters, Kingston, Jamaica, 13 March.

2002 Session of the Juridical and Technical Commission. Eighth Session of the International Seabed Authority. Kingston, Jamaica, August 5-16 (ISBA/8/C/6).

- Evaluation of the annual reports presented by the Parties. Report and recommendations by the Juridical and Technical Commission (ISBA/8/LTC/2).
- President, Committee on the Environment of the Juridical and Technical Commission.

2003 Session of the Juridical and Technical Commission. Ninth Session of the International Seabed Authority. Kingston, Jamaica, July 28-August 8 (ISBA/9/C/4).

2004 Session of the Juridical and Technical Commission. Tenth Session of the International Seabed Authority. Kingston, Jamaica, May 24-June 4 (ISBA/10/C/4).

2005 Session of the Juridical and Technical Commission. Eleventh Session of the International Seabed Authority. Kingston, Jamaica, August 15-26 (ISBA/10/C/8).

Publications and scholarly addresses

Over 190 combined publications in journals published and scholarly addresses made in in ernational conferences, seminars and courses in all five continents.

Author and co-editor of the Manual on the preparation of a presentation before the Commission on the Limits of the Continental Shelf published by DOALOS, UN 2006.

Speaker on the four regional courses on training concerning preparations for presentations before the Commission on the Limits of the continental Shelf published by DOALOS, UN, on Fiji, Sri Lanka, Ghana and Argentina between 2005 and 2006.

Symposium participation

Over 60 international symposia and conferences attended from 1977 to 2001.

Francis L. Charles (Trinidad and Tobago)

Date of birth	11 April 1943
Nationality	Citizen of Trinidad and Tobago
Profession	Hydrographer/Land Surveyor
Education	BSc in Surveying Sciences with a Major in Offshore Geodesy - North East London Polytechnic, UK (1980)
Other professional training	Certificate in Maritime Boundary Delimitation University of Toronto (1987)
	CARIS LOTS 4.0 including course on Limits and Boundaries, and Advanced Course on Article 76 (2004)
Professional experience	
November 1999 to present	Consultant in Cadastral Surveying, Hydrography, Geodesy and Maritime Boundary Delimitation and Company President of the firm Precision Surveys Limited
Oct 1996 to Oct 1999	On contract to the Government of Saint Lucia with the Commonwealth Fund for Technical Co-operation, as an expert in Land Surveying and Hydrography
Sept 1989 to Sept 1996	Director of Surveys and Commissioner of State Lands, Government of Trinidad and Tobago
1984 to 1989	Head of the Hydrographic Surveying Unit, Lands and Surveys Division, Trinidad and Tobago
1968 to 1984	Land Surveyor/Hydrographer - Lands and Surveys Division, Government of Trinidad and Tobago
Other professional activities	Member of the Team which established the Hydrographic Surveying Unit in Trinidad and Tobago (1982-1987)
	Resident, National Counterpart to the United Nations' Consultant, during the life of this Government of Trinidad and Tobago/United Nations Development Programme Project (1982-1987). Managed the Unit from (1984-1989)
	Member of National Negotiating Team of Trinidad and Tobago on Maritime Boundary Delimitation (1985 to Present), providing expertise on matters of Hydrography, Cartography and Geodesy, in negotiations with Venezuela, Grenada and Barbados. Designed the chart used to illustrate the

boundary agreed to by Trinidad and Tobago and Venezuela in 1990.

Managed execution of the survey of the Archipelagic Base Line Points around Trinidad and Tobago and prepared final submission to the United Nations.

Expert Member of Trinidad and Tobago's Team in the Arbitration of the T&T/Barbados Maritime Boundary Dispute before an UNCLOS Annex VII Tribunal (2004-2006).

Advisor to the Ministry of Foreign Affairs of Trinidad and Tobago on the preparation of an Article 76 Submission to the Commission on the Limits of the Continental Shelf (2006).

Professional Attachment (U.N. Fellow) to the Canadian Hydrographic Service (1985) addressing, inter alia, legal and hydrographic issues relevant to Law of the Sea Negotiations.

Member of the International Group of Experts on Maritime Baselines to examine the Relevant Provisions of the Law of the Sea (1987).

Part-time Lecturer in Hydrography at the University of the West Indies (1988-1992)

Chairman of Technical Committee I (Cartographic Data Acquisition) at the Fifth United Nations Regional Cartographic Conference for the Americas held at U.N., N.Y. January 11-15 1993.

Representative of Trinidad and Tobago to the International Hydrographic Organization (1987-1997).

Member of the Board of Directors of the Institute of Marine Affairs of Trinidad and Tobago (1989-1996).

Peter F. Croker (Ireland)

Date of birth:	8 December 1951
Nationality:	Irish
Place of birth:	Dublin

Education

Technical College:	1970; Riversdale College, Liverpool, England Ordinary National Diploma in Nautical Science
University:	1971-1975; Trinity College, Dublin B.A. Mod. (Hons) in Geology

Employment history

1985-present:	Petroleum Affairs Division, Department of Communications, Marine and Natural Resources, Dublin. Petroleum Exploration Specialist (geophysicist) in Division responsible for promotion, monitoring and regulation of petroleum exploration activity offshore Ireland. Has been involved in Law of the Sea issues since 1986. Provided all the technical cartography support for the Anglo-Irish delimitation negotiations 1987-1988 and 1991-1992. Responsible for the design, tender, contract, acquisition, processing and interpretation of seismic and bathymetric surveys over Ireland's continental margin in 1995 and 1996.

Affiliations

Active member of the Society of Exploration Geophysicists since 1980.

Active member of the European Association of Geoscientists and Engineers since 1992.

UNCLOS groups of experts meetings attended

March 1993:	Member of the Group of Technical Experts on the Definition of the Continental Shelf convened by the United Nations Office of Legal Affairs which prepared the booklet entitled 'The Law of the Sea: Definition of the Continental Shelf', published by the United Nations in 1993.
September 1995:	Member of the Group of Experts on Preparations for the Establishment of the Commission on the Limits of the Continental Shelf convened by the United Nations Office of Legal Affairs which prepared the report entitled 'Commission on the Limits of the Continental Shelf: its functions and

scientific and technical needs in assessing the submission of a coastal state' (SPLOS/CLCS/INF/1).

Commission on the Limits of the Continental Shelf

June 1997-June 2002:	Member of the Commission on the Limits of the Continental Shelf. Elected to position of Rapporteur of the Commission. Chairman of the Geophysics Working Group on the Scientific and Technical Guidelines 1997-1998. Member of the Confidentiality Committee elected May 2000. Member of the subcommission established to consider the submission of the Russian Federation in 2002.
June 2002-present:	Member of the Commission on the Limits of the Continental Shelf. Elected as Chairman of the Commission in June 2002 and re-elected as Chairman in 2004 for a second term.

Selected publications

Whittington, RJ; Croker, PF; Dobson, MR (1981): Aspects of the geology of the south Irish Sea. Geological Journal 16, 85-88.

Croker, PF; Whittington, RJ; Dobson, MR (1982): Cardigan Bay (Sheet 52 degrees N-06 degrees W) Solid geology, (1:250,000 Offshore Map series). (Institute of Geological Sciences/Geological Survey of Ireland).

Kashai, EL; Croker, PF (1987): Structural geometry and evolution of the Dead Sea-Jordan rift system as deduced from new subsurface data. Tectonophysics 141, 33-60.

Croker, PF; Shannon, PM (1987): The evolution and hydrocarbon prospectivity of the Porcupine Basin, offshore Ireland. In: Petroleum Geology of North West Europe. (Eds: Brooks, J; Glennie, KW) Graham & Trotman, London, 633-642.

Croker, PF; Klemperer, SL (1989): Structure and stratigraphy of the Porcupine Basin: relationships to deep crustal structure and the opening of the North Atlantic. In: Extensional Tectonics and Stratigraphy of the North Atlantic Margins. (Eds: Tankard, AJ; Balkwill, HR) American Association of Petroleum Geologists, Memoir, 46, 445-459.

Murphy, NJ; Croker, PF (1992): Many play concepts seen over wide area in Erris, Slyne troughs off Ireland. Oil and Gas Journal 90(37), 92-97.

Hovland, M; Croker, PF; Martin, M (1994): Fault-associated seabed mounds (carbonate knolls?) off western Ireland and north-west Australia. Marine and Petroleum Geology 11(2), 232-246.

Croker, PF; Shannon, PM (1995): The petroleum geology of Ireland's offshore basins: introduction. In: The Petroleum Geology of Ireland's Offshore Basins. (Eds: Croker, PF; Shannon, PM) Geological Society, London, Special Publication, 93, 1-8.

Croker, PF (1995): Shallow gas accumulation and migration in the western Irish Sea. In: The Petroleum Geology of Ireland's Offshore Basins. (Eds: Croker, PF; Shannon, PM) Geological Society, London, Special Publication, 93, 41-58.

Croker, PF (1995): The Clare Basin — a geological and geophysical outline. In: The Petroleum Geology of Ireland's Offshore Basins. (Eds: Croker, PF; Shannon, PM) Geological Society, London, Special Publication, 93, 327-339.

Croker, PF; O'Loughlin, O (1998): A catalogue of Irish offshore carbonate mud mounds. Geosphere-biosphere coupling: Carbonate Mud Mounds and Cold Water Reefs, University of Gent, Belgium, 7th-11th February, 1998, IOC Workshop Report No. 143, p.11.

Henriet, J-P; De Mol, B; Pillen, S; Vanneste, M; Van Rooij, D; Versteeg, W; Croker, PF; Shannon, PM; Unnithan, V; Bouriak, S; Chachkine, P (1998): Gas hydrate crystals may help build reefs. Nature, 391, 648-649.

Tappin, DR; Croker, PF (1999): New South Irish Sea geology map. In: "The Petroleum Exploration of Ireland's Offshore Basins" conference, Dublin, 29-30th April, 1999: Extended Abstracts, (Eds: Croker, PF; O'Loughlin, O), 188.

Unnithan, V; Henriet, J-P; Shannon, P; Croker, P (2000): Carbonate mound provinces to the west of Ireland: an overview. EOS, Transactions of the American Geophysical Union 81(48), 638. (Book of Abstracts, AGU 2000 Fall Meeting, December 15-19, 2000, San Francisco, California, Poster OS61B-18)

Huvenne, VAI; Croker, PF; Henriet, J-P (2002): A refreshing 3D view of an ancient sediment collapse and slope failure. Terra Nova 14(1), 33-40.

Croker, PF; Kozachenko, M; Wheeler, AJ (2005): Gas-related seabed structures in the western Irish Sea (IRL-SEA6), 120. (Technical report produced for Strategic Environmental Assessment-SEA6) http://www.offshore-sea.org.uk/ consultations/ SEA 6/SEA6 Gas CMRC.pdf

Judd, AG; Croker, PF; Tizzard, L; Voisey, C (2006): Extensive methane-derived authigenic carbonates in the Irish Sea. Geomarine Letters (in press).

Presentations

Croker, PF (1999) The mandate and work of the Commission on the Limits of the Continental Shelf. Presentation at ABLOS Conference, Monaco, 9-10th September 1999.

Croker, PF (2000) The mandate and work of the Commission on the Limits of the Continental Shelf. Presentation at Open Meeting of the Commission, United Nations Headquarters, New York, 1st May 2000.

Croker, PF (2003): The Commission on the Limits of the Continental Shelf: progress to date and future challenges. (Conference on Legal and Scientific Aspects of Continental Shelf Limits, Reykjavik, 25-27 June 2003, organised by the Center for Oceans Law and Policy, University of Virginia and The Law of the Sea Institute of Iceland)

Croker, PF; Morgan, CP; Murphy, NJ (2003): Assessing the undiscovered and undeveloped hydrocarbon resources of the Irish Continental Shelf. (6th Petroleum

Geology Conference: North West Europe and Global Perspectives, 6-9 October 2003 at the QEII Conference Centre, Westminster, London, UK)

Croker, PF (2006): The CLCS: a further update on the work of the Commission (PowerPoint presentation to the International Symposium on Scientific and Technical Aspects of the Establishment of the Outer Limits of the Continental Shelf beyond 200 nautical miles, 6-7 March 2006, Tokyo, Japan)

Khalil Ibrahim Danbooh (Kuwait)

Rank:	Lieutenant Colonel
Occupation:	Map Production and GIS/DPT (Director Of Survey) Member of Borders Committee since 1992.
Ministry:	Ministry of Defense/Army General Command/ Directorate of Military Survey

Qualifications

Master's Degree in Military Sciences/General Staff and Command College/Kuwait

Diploma of High Studies in Industrial Electronics/College of Technological Sciences/Kuwait (Assistant Engineer)

Diploma of Higher Studies in Aerial Surveying/(Photogrammetry) Stuttgart University/Germany

Diploma of Higher Studies in Computer Sciences/Kuwait

English Language Diploma/USA

A course in basic and advanced aerial photography/USA

A course in basic and advanced reconnaissance, aerial and space photography analysis/United Kingdom

A course in basic and advanced Geographical Data Systems/Kuwait/Institute for Scientific Research/Kuwait

A course in Map Production and Geographical Data Systems/Switzerland

A number of courses in Borders and International Conflicts/Durham University/ United Kingdom

A number of courses in Borders and Naval Conflicts/Durham University/United Kingdom

A number of courses in land borders and the role of Geographical Data Systems/ United Kingdom

A course in regional borders/Saad Al Abullah Academy/Kuwait

A course in Intelligence and Information Security/Kuwait

A course in Geographical Data system/Geomedia/Intergraph/Kuwait

A course in Automated Drawing and Topographic Map Production/Intergraph/ Kuwait

Projects

Project Manager, Topographic Map Production and Database for the Substructure Map of the State of Kuwait/Ministry of Defense/Kuwait

Head of Survey Team for the Fourth Wall Project, Kuwaiti-Iraqi Borders/Security Committee/Council of Ministers/Kuwait

Head of Technical Team for Borders Demarcation Projects (Maritime Borders with Saudi Arabia-Limits of Continental Shelf with Iran/Ministerial Committee or borders/Foreign Ministry/Kuwait

Committee

Member, Kuwaiti-Iraqi Borders Demarcation Committee/United Nations/1992-1993

Member, Joint Kuwaiti-Saudi Borders Demarcation Committee (Submerged Region) 1995-2003

Member, Ministerial Committee for the study of the subdivided Region with Saudi Arabia (Ministry of Oil)

Member, Ministerial Committee for Borders/(Foreign Ministry)

Member. Kuwaiti-Saudi Committee for the Rehabilitation of Border Markings and head of technical team (Ministry of Interior)

Member, National Committee for the Management of Geographical Data Systems. 2002-2005

Member, Reduced Committee for the Formulation of the Final Framework of the Geographical Data Systems National Center

Member, Working Group, Kuwaiti National Atlas 2000-2003

Member Kuwait Team for survey, Maps and Geographical Data Systems. Gulf Cooperation Council, 1984-2002

Memberships

Member, Kuwaiti Geographic Society/Kuwait

Member, American Society for Photogrammetry and Remote Sensing

Member, Scientific Club of Kuwait

Participating member in the Middle East Association of Geographical Data Systems Users

Participations in conferences

Conferences of the American Society for Photogrammetry and Remote Sensing

Conferences of the International Boundaries Research Unit/United Kingdom

Conferences of Geographical Data Systems of Kuwait and the Middle East/Dubai/ Egypt

Conferences of Intergraph Graphic Users Group/U.S.A.

Seminars. Lectures and Workshops in the areas of Map Production and Geographical Data Systems

Conferences on Unitization and International Boundary Dispute Resolution. Expedite dispute resolution and optimize cross border projects in oil and gas

Indurlall Fagoonee (Mauritius)

Home: 17 Manick Avenue
La Louise, Quatre Bornes

Office: Prof. I. Fagoonee
Vice Chancellor/Chief Executive
University of Mauritius

Member United Nations Commission on the Outer Limits of the Continental Shelf (UNCLCS) (16 June 2002-16 June 2007: Chairman Training Committee of the Commission (June-August 2004); Chairman Editorial Committee of the Commission (August 2004-June 2007); Member of the Subcommissions for consideration of submissions from Australia and Ireland.

UNDP/GEF STAP roster of experts on Marine Biodiversity

Chairman, Mauritius Oceanography Institute

Tel: (230) 4242447

Tel. (off): (230) 45 41 041
(230) 46 49 958

Fax: (230) 45 49 642

Direct Fax: (230) 466 7900

E-mail: goofa@uom.ac.mu; fguni@yahoo.co.uk

Date of birth: 21 February 1950

Areas of expertise

Oceanography and marine environment

Marine environment protection. Coastal management. Coral reef ecosystems. Sea level rise. United Nations Convention on the Law of the Sea (UNCLOS). Marine Biodiversity.

Environment

Sustainable Development. Environment Impact Assessment. Global issues. Environmental planning and institutional development. Environmental Health, Environment and Policy. Biodiversity Conservation.

Higher education

Relevant affiliations/aptitudes

Chartered Biologist and Fellow, deemed DSc. Institute of Biology, UK scuba diving (Naui, USA): Dive Leader, Assistant Instructor, Dive Master

Computer Proficiency: Advanced Applications User.

Language proficiency

English and French (spoken and written)

Educational background

Universités de Paris VI and XI, as French Government scholar

Licence ès Sciences (BSc) — 1974

Maitrise de Recherches (MSc) — 1975

Diplome D'Etudes Approfondies (MPhil.) — 1976

Doctorat de Spécialité (PhD) — 1978

University of Miami, Florida, USA, as a Fulbright (Humphrey) scholar at the School of Marine and Atmospheric Sciences

M.S. Marine Science — 1984

University of Manchester, United Kingdom
Manchester Business School

Training Course on Science and Technology Assessment and Policy, April 1993.

TeleUniversité de Quebec, Montreal, May 2000

Training in project management, under aegis of Canadian International Development Agency (CIDA) — funded CAERENAD (a multilateral collaborative) programme on distance education involving TeleUniversité du Quebec, Chile, Brazil, Costa Rica, Senegal and Mauritius.

University of Abertay Dundee, Dundee Business School, Scotland

Leadership and Strategic Change in Higher Education, Managing Change 2000, August 2000 (A strategic development programme for Heads of Commonwealth Universities)

Work profile

Current position

June 2005-to date	Vice-Chancellor/Chief Executive University of Mauritius
Sept 1998-June 2006	Pro Vice-Chancellor University of Mauritius (Curriculum Development, Distance and Virtual Learning, Quality Assurance, Innovative Teaching Technologies, International Relations) Acting Vice-Chancellor on numerous occasions

Feb 1996-August 1998	Dean Faculty of Science University of Mauritius
	Consultant on Environment and Marine Science for FAO/World Bank and UNESCO, and Government of Mauritius

Previous positions

March 1995-January 1996	Head, Dept. of Biological Sciences
April 1994-to date	Professor of Environmental Sciences
January 1988-March 1991	Adviser on Environmental Matters and Marine Affairs, Ministry of Agriculture, Fisheries and Natural Resources
November 1988-December 1989	Consultant on Marine Environment, SIGMA Consulting Engineers
June 1989-December 1989	Consultant on Sea Level Rise Impacts, Center for Environmental Studies, State University of New Jersey, USA

Internships

Southeast Fisheries Center, National Oceanic and Atmospheric Administration — Stock Assessment of demersal fishes.

National Marine Fisheries Service, NOAA, Department of Commerce, Department of Commerce, Washington D.C., U.S.A. in the Offices of Fisheries Management, Utilization Research, Research Investigations, Industry Services, International Fisheries, and Habitat and Protected Species.

Oceanographic Expedition, aboard the NOAA Research Vessel Oregon II, under the auspices of NMFS, NOAA Pascagoula Laboratory, Mississippi, U.S.A.

Bureau of Marine Research, Department of Natural Resources, St. Petersburg, Florida, U.S.A
Remote Sensing Applications

Student projects supervised (1977-2004): 120

Grants from AUPELF-FICU, UNESCO, Intergovernmental Oceanographic Commission (IOC), UNESCO/SCI Coastal and Marine Resource Planning, Development and Management Marine Policy.

Publications
(only Mauritian to have published a Paper in science to date)

Over 120 scientific papers
A large number of pseudo-scientific contributions
Editorial Boards of International Scientific Journals
Edited several conference proceedings
Several Government Reports on Environmental and other Issues.

Professional accomplishments, including United Nations experience/consultancies

Field Experience: Mauritius, Rodrigues, Western and Eastern Africa

Co-Leader of World Bank Technical Mission on Environment, Leading to formulation of an Environment Investment Program for Mauritius (January-March 1988).

Prepared background papers and 15 environmental project write-ups in connection with sustainable agriculture, marine, natural resource conservation and management.

Responsible for preparation and presentation of lead technical paper-cum projects on "Sustainable Agriculture and Development" for World Bank's International Meeting on the Mauritian Agricultural Sector (Donors Conference) (September-December 1990).

Co-Scientific Leader with Canadian International Center for Ocean Development in an Environmental (lagoon) Assessment Mission to Rodrigues Island (July-August 1990).

Consultant for the preparation of a Master Plan for the development and protection of the Northern Tourist Zone, covering and co-authoring reports on solid waste management, reef and lagoon studies, marine and littoral pollution, sediment loading, underwater surveys, current patterns, feasibility study of a sewage outfall, a sewerage system, a Master Plan for the sustained development of the Zone (Nov. 1988-Dec. 1989).

As Consultant for State University of New Jersey, report on the environmental and socio-economic impacts of global climatic change and sea level rise (June 1989-Dec. 1989).

FAO/World Bank Environment Planning Expert to develop an Environment Action Plan for TOGO, to set up the environmental protection framework, to advise and give training to the local consultants, and strengthen the capacity of the government and private cadres in environmental matters (July 1991-December 1992).

Consultant for UNESCO as Marine Science Specialist for advising on the establishment of a Marine/Environmental Science Research and Teaching Programme at the Omar Bongo University, Gabon. (April-May 1992).

Consultant as Marine Environmental Expert for Workshop on Coastal Zone Management. Tanzania, April 1993.

Marine Environment Consultant for Environmental Impact Assessment on Coastal Marina Development, Black River, Mauritius, May-June 1993.

Marine Environment Consultant for Environmental Impact Assessment of Hotel Development, Pointe aux Piments, July-September 1993.

Consultant Resource Person for a Regional Training Workshop on Coastal Zone Management, Indian Ocean, Nov. 1993.

Marine Environment Consultant for "Appraisal/EIA of the Marine Environment of Grand Baie Region for A Sewage Outfall Proposal", Government of Mauritius, July 1994.

Marine Environment Consultant for Environment Impact Assessment re: Airport Development, Mauritius, and Harbour Development, May-August 1994, 15.

Assisted International Center for Ocean Development, Canada, in developing a Curriculum for an M.Sc. course in Marine Affairs.

Carried out research in pest and pesticide management, coastal ecosystems, coral reef studies, marine conservation, sea level rise studies.

Academic contribution in the field of marine science and environmental studies, initiating a degree course in Environmental Studies.

Organized and/or participated in a large number of national and international meetings and conferences.

Ocean Science Expert for Intergovernmental Oceanographic Commission, OSLR programme of IOCINCWIO.

Resource Scientist on Environmental Sensitivities of an Oil Spill, for the Oil Industry: Workshop on management of oil spill in Mauritius.

Consultant on Identification of the Training Needs in Environment in Mauritius for the Indian Ocean Commission/European Development Fund, July-August 1996.

Consultant for the Commonwealth Science Council, UK, for elaborating a Regional Ocean Resources Programme for the Western Indian Ocean (CORP-WIO), Jan-March 1998.

Consultant for the Commonwealth Science Council, UK, to represent it at the OAU/STRC (Organisation of African Unity/Scientific, Technical and Research Commission) at its Ocean Sciences Council meeting, Mombasa, Kenya, May 1998.

Consultant Commonwealth Science Council for conducting (and as Team Leader) a Regional Training Workshop on Environmental Impact Assessment, Mauritius, May 1998.

UNDP/GEF STAP Roster of Experts on Biodiversity: recently (July 2002) provided independent review (immediate approval) of a large grant GEF proposal for Maldives Atoll Ecosystem-based conservation of globally significant biological diversity.

Chairman/membership of Committees

- Member of University Senate for many terms/years; Member and Chairman of Faculty Boards.
- Chairman or Member of a large number of National Committees: Agricultural Diversification; Pesticide and Fertilizers, Natural Products Resources, National Environment Commission, National Environment Committee, Cane Millers and Planters Control Board, Advisory Committees on Environment, Natural Sciences, Medical and Health Sciences, Member (Alternate) Mauritius Research Council, Member Environment Advisory Council, Chairman National Coordination Committee for Marine Expedition Indian Ocean Royal Society UK, Scientific Adviser on Oil Spill Contingency Committee, etc.
- Chairman of Marine 2020 studies, sub-group and Member, Science and Technology Group for National Long Term Perspective Studies for Mauritius 2020; also member of Marine Resources Group, National Economic Development Council.

- Coordinator, All-University Environmental Group, University of Mauritius.
- Coordinator, National IGBP Committee for SASCOM/START Programme.
- Member, National Accreditation and Equivalence Council, Mauritius.
- Chairman, Board of Directors, Mauritius Oceanographic Institute.
- Former Chairman, National Biosafety (GMO) Committee.
- Chairman, National Productivity and Competitively Committee on Human Resources Development.
- Member United Nations Commission on the Outer Limits of the Continental Shelf (UNCLCS) (16 June 2002-16 June 2007): Chairman Training Committee of the Commission (June 2002-August 2004); Chairman Editorial Committee of the Commission (August 2004-June 2007); Member of the Subcommissions for consideration of submissions from Australia and Ireland.
- UNDP/GEF STAP Roster of Experts on Biodiversity: recently (July 2002) provided independent review (immediate approval) of a large grant GEF proposal for Maldives Atoll Ecosystem-based conservation of globally significant biological diversity.
- Visiting Professor, University of Brunel, UK
- Director, Board of Investment, Mauritius
- Chairman, COMESA Regional Investment Agency

Decorations/honours

Knighthood of the French Government for outstanding academic achievements (Chevalier dans l'Ordre des Palmes Académiques) — 2001

Professional affiliations

- Chartered Biologist — CBiol (Institute of Biology, U.K.)
- Fellow of the Institute of Biology — FIBiol. Deemed DSc (Institute of Biology, U.K.)
- Member, International Coral Reef Society — 1986

Mihai Silviu German (Romania)

Date of birth: 3 June 1950, Piatra Neamţ, Romania

Office address: National Agency for Mineral Resources
36-38 Mendeleev St., 010366 Bucharest, Romania

Phone: +40-21 3170184, fax: 40-21 3170780, mobil: +40 (0)722394 844

E-mail: mgerman@namr.ro

Professional expertise: geological and geophysical management, promotion and negotiation, regulation

Work history

August 1995 to present — Deputy General Director — National Agency for Mineral Resources (NAMR). NAMR is one of the agencies created by the Romanian Government in 1994 as an independent autonomous institution responsible to monitor and regulate the activity in the mineral resources domain.

Responsibilities

Expertise: seismic and drilling, including the projects relating to the Romanian offshore;

Promotion: AAPG, SEG, EAPG, World Petroleum Congress, etc. (presentation of bidding rounds and petroleum opportunities in international conferences and organizing the national stand in the above-mentioned events);

Negotiation: Exploration and Production Petroleum Concession Agreements, including the offshore blocks, offered by the National Agency for Mineral Resources in the last twelve years (Istria, Neptun, Constanta, Midia and Pelican);

Negotiation: of the Maritime Boundary Delimitation Agreement, between Romania and Ukraine and Romania and Bulgaria, as member of Romanian team;

Supervision and management: President of the Management Committee established for the Exploration and Sharing Production Agreement in the Blocks XIII Pelican and XV Midia, signed with Enterprise Oil and assigned to Paladin Expro Limited and Sterling Resources;

Regulatory issues: participation in drafting the Petroleum law, Methodological norms, coordinator of the establishing of technical regulation;

Bidding activities: participation in drafting of the model agreements, bidding procedures, and data packages;

Public relations: responsible for NAMR interface with petroleum companies involved Romania or interested in the current bids.

1985-1994 — Expert — Ministry of Geology

Responsibilities

- Expertise: geological, geophysical and drilling projects, including the projects relating to the Romanian offshore;
- Supervision: petroleum activities (exploration in Eastern Carpathian and on the Black Sea).

1974-1985 — Geologist — IPGG Bucharest

Responsibilities

- Geological mapping: Eastern Carpathian, Maramures Depression, Libya
- Geological interpretation

Other skills

Academic qualification: Geological and Geophysical Faculty — University of Bucharest, 1974 — M Sc. in Geology and Geophysics

Training Courses:

- Petroleum Economics and Contract Negotiations — Bucharest — Gaffney, Cline & Associates
- "Economics of Petroleum exploration and Production & Oil and Gas Negotiations" — Geneva — Petroconsultants
- "Petroleum Economics and Risk Analysis" organized by Enterprise
- Well logging interpretation — Ploieşti — organized by the Ministry of Petroleum
- Geological interpretation of seismic data — Bucharest — IPGG

Author of various papers presented in national and international conferences

Foreign languages:

English

French

Membership

- 2002-2007 member of the Commission on the Limits of the Continental Shelf (member of the Subcommissions for consideration of Ireland submission and of the joint submission made by France, Ireland, Spain and United Kingdom)
- 1993 to present — member of Bucharest Geosciences Forum
- 1999 to present — member of Romanian Association of Petroleum Geologists
- 2005 to present — member of World Energy Council — Romanian National Committee

Abu Bakar Jaafar (Malaysia)

Date of birth: 20 October 1949

Education

1973	Bachelor of Engineering (Hons), University of Newcastle, NSW, Australia
1976	Master of Environmental Science, Miami University, Oxford, Ohio, USA
1984	PhD in (Marine) Geography, University of Hawaii @Manoa, USA

Current positions

Member of the Commission on the Limits of the Continental Shelf (1997-2002) (2002-2007)

Adjunct Senior Fellow, Maritime Institute of Malaysia

Adviser to Malaysia National Continental Shelf Committee of the Prime Minister's Department, and

Executive Chairman/Principal Senior Environmental Consultant, Enviro-LIFT Services Sdn. Bhd.

Other previous posts

Director-General, Department of Environment, Ministry of Science, Technology, and the Environment, Malaysia (1990-1995)

Senior Controller (Processing & Engineering), Kumpulan Guthrie Berhad (1996)

Managing Director, Alam Sekitar Malaysia Sdn Bhd (1997-2000)

Director of Technology, PEREMBA Group of Companies (2001-2004)

As a member of the Commission on the Limits of the Continental Shelf

He was responsible for, as a Chairman of a Task Group on, Charts and Illustrations of the CLCS Documents, namely, the Scientific and Technical Guidelines, Rules of Procedure, and Modus Operandi. His other appointments in the Commission are:

Chairman of the CLCS Confidential Committee;

Chairman of the CLCS Subcommission on the Submission made by Ireland (Since 16th Session of CLCS);

Chairman of the CLCS Subcommission on the Joint Submission made by France, Ireland, Spain and United Kingdom of Great Britain and Northern Ireland (Since 18th Session of CLCS).

Professional experience relating to maritime matters

Specializing inter alia in the interpretation of Article 76 of the UN Convention on the Law of the Sea of 1982, and the application of its criteria in the determination of the foot of the continental slope and that of the formulae and the constraints in the delineation of the outer limits of continental shelf.

After having received a bachelor degree in Engineering (Newcastle), a Master degree in Environmental Science (Miami), and a PhD in (Marine) Geography (Hawaii), Dato' Dr Bakar Jaafar has been involved in matters relating to maritime affairs since 1977 as:

A Member of the Delegation of Malaysia to the Third UN Conference on the Law of the Sea (UNCLOS) at its 8th and 9th sessions in Geneva and New York, 1978-1979, and directly involved in the negotiations over Article 246 inter alia on the conduct of marine scientific research on the continental shelf beyond 200 nautical miles;

A Member of Malaysian Delegation at the Second Session of the Intergovernmental Council for International Hydrological Programme (IHP) of UNESCO, Paris, June 20-28, 1977;

Leader of the Malaysian Officials and Scientists to the Meetings of the ASEAN Working Group on Marine Science (1979-80), (1984-90);

A Leader of Malaysian Official Group to the First Meeting of ASEAN Working Group on Marine Science, Jakarta, 1979;

Research Grantee at the East-West Center Program on the Extended Maritime Jurisdictions (1980-84), and completed a Dissertation on "the Prospects of Marine Regionalism in the Straits of Malacca and Singapore";

National Focal Point for the ASEAN-Australia, ASEAN-Canada, ASEAN-USA Cooperative Programmes on Marine Science (1986-90);

ASEAN-Canada Project Coordinator on the Development of Marine Water Quality Criteria and Standards (1986-90);

Member of the Board of Directors of Maritime Institute of Malaysia (MIMA) (1993-95), and a member of MIMA since its inception;

Representative of Malaysia in the UNEP Regional Seas Programme and in the Coordinating Body of the Seas of the East Asia (COBSEA)(1990-95);

Leader of the Malaysian Delegation to the IMO Plenipotentiary Conferences on the Civil Liability Convention (CLC), the FUND Protocol of 1984, and on Hazardous and Noxious Substances (HNS) (1984);

Leader of Malaysian Delegation to the 4th Plenary Session of Intergovernmental Panel on Climate Change (IPCC), 27-30 August 1989, Sundsvall, Sweden;

The Malaysian Delegate at the WMO/UNEP/IPCC Meeting of Response Strategies Working Group on Legal Measures, Geneva, 10-11 April 1990;

A Delegate to Experts Review Panel to update the UNEP List of Environmentally Harmful Chemical Substances, Processes and Phenomena of Global Significance, 26-29 November 1990, Geneva, Switzerland;

Representative of Malaysia in the Revolving FUND Committee to Combat Oil Pollution in the Straits of Malacca and Singapore (1990-95);

Member of Maritime Enforcement and Coordination Committee of National Maritime Council (NSC) (1984-1995);

Member of National Committee on Antarctica (1985-1995);

Member of National Panel on Strategic R & D under IRPA (1986-1995);

Member of the National Council for Scientific Research and Development (1996-2005);

Member of Advisory Board on Graduate Studies in Coastal & Marine Studies, University Sains Malaysia (USM) (1991-1995);

Member of the Board of Studies, Science Faculty, University of Malaya (1992-1995);

Member of the Board of Directors of University College of Science and Technology Malaysia (since 2000);

Adviser to the National Technical Committee on Continental Shelf; and

Adviser and Speaker at the MIMA/PETRONAS Kuala Lumpur Regional Workshop on the Delineation of Outer Limits of Continental Shelf, July 2002.

Maritime-related publications

Abu Bakar Jaafar (1984). *Prospects for Marine Regionalism in the Malacca and Singapore Straits*. PhD Dissertation. University of Hawaii@Manoa. May. 262p.

Abu Bakar Jaafar (1983). Legal and Institutional Arrangements for Natural Resources Management in Malaysia, Honolulu, HI: East-West Environment and Policy Institute Working Paper, December, iv, 48 pp.

Abu Bakar Jaafar and Mark J. Valencia (1985), Marine Pollution: National Responses and Transnational Issues. In George Kent and Mark J. Valencia (eds.) *Marine Policy in Southeast Asia*, pp. 267-309, 399-403. Berkeley, CA: University of California Press.

Abu Bakar Jaafar (1985). The Changing Legal Status in the Straits of Malacca and Singapore, in *the Confrontation of United States and Law of the Sea*. Ed. Jon Van Dyke. Honolulu, Hawaii: Law of the Sea Institute. pp. 285-311.

Abu Bakar Jaafar (1985). Comparative Analysis of Marine Pollution in the Straits of Johor. Kuala Lumpur: Department of Environment, September, Second Issue, 9p. 3 Tables. 11 Figures.

Abu Bakar Jaafar (1988). Review of Past and On-going Research and Monitoring Relevant to Oil Pollution and its Control in the East Asian Seas Region, in UNEP Regional Seas Reports and Studies No. 96, UNEP/ASEAMS No. 88, June, pp. 51-78.

Abu Bakar Jaafar (1988). Prospects for Regional Cooperation in the Straits of Malacca, in *Coastal Zone Management in the Straits of Malacca*, Eds. Peter R. Burdridge, et al, School for Resource & Environmental Studies, Dalhousie University, NS, pp. 184-190.

Abu Bakar Jaafar (1992), Wastewater Management in Malaysia, in E.E. Chua and L. R. Graces (eds.). *Waste Management in the Coastal Area of the ASEAN Region: Roles of Government, Banking Institutions, Donor Agencies, Private Sector, and Communities*, pp. 37-41, ICLARM Conference Proceedings 33, Philippines: ICLARM.

Abu Bakar Jaafar (2000). Non-Living Resources in the Straits of Malacca: Going Beyond the Save or Squander Conundrum. In *Towards Sustainable Management of the Straits of Malacca*. M. Shariff, F.M. Yusoff, N. Gopinath, H.M. Ibrahim, and R.A. Nik Mustapha (Eds). Serdang: Universiti Putra Malaysia. Pp. 319-329.

Morgan, Joseph R. and Abu Bakar Jaafar (1985). Straits Talk. in *U.S. Naval Institute Proceedings* (March), 120-127.

Valencia, Mark J. and Abu Bakar Jaafar (1981). National Response and Transnational Issues, *Marine Pollution*, 270-1.

Valencia, Mark J. and Abu Bakar Jaafar (1984). Malaysia and Extended Maritime Jurisdiction: The Foreign Policy Issues, *Malaysia Journal of Tropical Geography* (10 December), 567-87.

Valencia, Mark J. and Abu Bakar Jaafar (1985), Environmental Management in the Straits of Malacca and Singapore: Legal and Institutional Issues. *Natural Resources Journal 25* (January): 195-232.

Valencia, Mark J. and Abu Bakar Jaafar (1985). Management of the Malacca/Singapore Straits: Some Issues, Options and Probable Responses, *Akademika* (26 January), 93-117.

Other maritime-related papers/presentations

"ASEAN and the Law of the Sea: The Case of the Straits Used for International Navigation", Lecture delivered at the INTAN Foreign Service Course for ASEAN Diplomats, 17 July 1985, Kuala Lumpur.

"Environmental Management of the Malacca Straits: Some Issues, Options, and Probable Responses", Paper presented at the Symposium on Environmental Research and Coastal Zone Management Problems in the Straits of Malacca, Medan, 11-13 Nov. 1985. EMDI/USU.

"Water Quality Monitoring", Paper presented at the ASEAN-US Training Course on Watershed Research and Management, Serdang, Selangor. June 22-July 5, 1986. 15p.

"National Contingency Planning in Malaysia", Paper presented at the ASCOPE/UN-CCOP/NECOR Seminar on Regional Cooperation on Oil Spill Contingency Planning and Response", August 4-8, 1986, Holiday Inn, City Centre, Kuala Lumpur.

"The Status of Coastal Area Planning and Management", in ASEAN/USAID Training Course on the Principles of Coastal Resource Management, 10-21 August 1987, Johor Bahru, Malaysia.

"Protection and Preservation of the Marine Environment", International Ocean Institute (IOI) Lecture Series, Kuala Lumpur, 17 November 1988.

"Concept of Coastal Zone Management", Paper presented at the PDC Conference-UUM-Exhibition on Improving Visual Environment in Penang, 25-26 February 1989.

"The Development of International Marine Environmental Laws and its Implications", Paper presented at the Maritime Industry Seminar of Malaysia, Petaling Jaya, 21 May 1990.

"Toxic and Hazardous Waste Management in Malaysia", Paper presented at the CETDEM-DOE Joint Training Course on Toxic & Hazardous Waste, Kuala Lumpur, September 10, 1990.

"Global Environmental Issues in Regional Perspective", Keynote Address at ENVIROWORLD '91, WTC, Singapore, 27 June 1991.

"Wastewater Management Policy in Malaysia", Paper presented at ADB/ICLARM Conference on Waste Management Problems in the Coastal Areas of ASEAN Region, Singapore, 28-30 June 1991.

"Malaysia: Policy, Laws and Responses to Environmental Issues", Paper presented at ENVIROASIA '91, World Trade Centre, Singapore, 8 November 1991.

"Protection and Preservation of the Marine Environment: The Case of the Straits of Malacca and Singapore", Paper presented at the IOC/WESTPAC Regional Seminar, Penang, 2-6 December 1991.

"Protecting Coastal Zone of Malaysia: Strategies for Pollution Control", An Address at the MIMA Seminar Series, Kuala Lumpur, 22 December 1994.

"UNCLOS of 1982 and Article 76", Lecture delivered at the MIMA/PETRONAS Regional Workshop on the Delineation of Outer Limits of Continental Shelf, Kuala Lumpur, July 2002.

Participated as an instructor in the training course for delineation of the outer limits of the continental shelf beyond 200 nautical miles and for preparation of Submissions to the Commission on the Limits of the Continental Shelf organized by DOALOS in Brunei-Darussalam, 12-16 February 2007.

"Prospects for Joint Submission: In the area of the South China Sea", Paper presented at the First Technical Consultative Meeting of Malaysia and Social Republic of Vietnam, The Regent, Kuala Lumpur, 3 March 2007.

Professional and scientific associations

Fellow of the Academy of Sciences, Malaysia (FASc)

Fellow of the Institution of Engineers, Malaysia (FIEM); and a Professional Engineer (Mechanical)

Fellow, UKM Institute of Environment and Development

Fellow, UTM Institute of Environment & Water Resources Management

Chairman, Association of Environmental Consultants and Contractors of Malaysia (AECCOM)

Honorary Secretary-General, Business Council for Sustainable Development-Malaysia (BCSD-M)

Life Member, Founder & Past Secretary-General, Environmental Management and Research Association of Malaysia (ENSEARCH)

Life Member, Malaysian Nature Society

Federal and State awards

For his excellent public service, he was conferred with both Federal and State awards: KMN in 1985, JSM in 1992 by the SPB Yang DiPertuan Agong (His Majesty The King of Malaysia), and

DPMP in 1993 by the DYMM Raja of Perlis, which carries the title of Dato'ship.

E-mail: bakar.jaafar@gmail.com
Mobile: +60 12 320 7201
Residence: 21 Jalan Mutiara Subang 2, Taman Mutiara Subang,
47500 Subang Jaya, Selangor, Malaysia
Tel: +60 3 5635 3750

George Jaoshvili (Georgia)

Date of birth:	13 November 1969
Citizenship:	Georgian
Marital status:	Married

Experience

02/15/2006 Head	The Centre for the Monitoring and Prognostication, 150 D.Agmashenebeli Ave. Tbilisi, Georgia http://www.environment.ge/
15/10/2005-15/02/2006 Adviser to the Minister	Ministry of environment protection and Natural Resources of Georgia 6, Gulua str. 0114, Tbilisi, Georgia
2001-2002-2004 Invited scientist	Muséum National d'Histoire Naturelle "Institut de Paléontologie Humaine" 1, rue Rene Panhard 75013 Paris, France Tel:+33(0)143316291 http://www.mnhn.fr/
Since 1999 Invited expert	BP "Sediments Movement Monitoring" Supsa terminal coastal zone erosion control.
2000-2004 Head of department of oceanography and modelling of the coastal zone development	"International Centre for Assessment of Anthropogenic and Natural Impact over the Environment" ICAIE 6, Milorava St. Tbilisi, Georgia 0109 Tel: +995-32 921746, +995-99 105874
Since 1999 Invited scientist	National Museum 1, Purtseladze St. Tbilisi, Georgia. Tel: +995-32 932927 Studying Sedimentology of Dmanisi archaeological site
5/10/1994-5/10/1995 Post-Graduate	The University P. & M. Curie (Paris VI) 4, Place Jussieu 75252 Paris, France "Laboratory of Stratigraphy and Sedimentology"
05/08/1991 — Scientist 01/09/2004-01/02/2006 Head of Laboratory of Marine Geology	Geological Institute of Academy of Sciences of Georgia 1/9 M. Aleksidze St. Tbilisi, Georgia Tel: +995-32 335109

Military service

1988-1989

Education

1992-1996 Graduate student	Geological Institute of Academy of Sciences of Georgia 1/9 M. Aleksidze St. Tbilisi, Georgia Tel: 335109
1986-1991 Geological engineer	Tbilisi State University Faculty of Geology & Geography 1, Chavchvadze Ave. Tbilisi, Georgia

Field of experience

Geology, Hydrology, Oceanology, Environment.

Significant publications

"Sedimentology of Pleistocene of The Black Sea in Georgia" — Published in "Annales Geophysicae"/Supplement of Volume 16, 1998 (thesis).

"Heavy metal in recent sediments of Black Sea Georgian segment" — International Seminar on "Geologic, geophysical and geochemical research on Black Sea"; p. 15-22, Tbilisi, 1999.

"Dynamic of the river mouth of r. Rioni and Rionsbros" — Dynamic and thermic of rivers, reservoirs and littoral zone; V Conference. P. 418, Moscow, 1999.

"Formation condition of recent sediments of central and south-eastern part of the Black Sea Georgian sector" — Academy of science of Georgia, Institute of Geology. Proceeding; Lithology. p. 218, Tbilisi, 2002.

"Impact of anthropogenic factor over the Black Sea sediment discharge" — 10th International symposium on solubility phenomena; p.82; Varna, 2002.

"Impact of Anthropogenic Factor over the Black Sea river sediment discharge" UNESCO, 2002.

"Sedimentation of Pleistocene deposits in Georgian sector of the Black Sea" Academy of science of Georgia, Institute of Geology. Proceeding; Lithology. Tbilisi, 2004 (in print).

"Black Sea coastal erosion (Georgia sector)" 4th Black Sea International conference. Environmental protection technologies for coastal areas, 2004 Varna, Bulgaria.

Languages

Georgian — Native

English; French; Russian — Fluent

Address:

The Centre for the Monitoring and Prognostication, 150 D.Agmashenebeli Ave. Tbilisi, GEORGIA Office tel.: 995 32-95 01 31 E-mail: gjaoshvili@environment.ge

Emmanuel Kalngui (Cameroon)

Date and place of birth:	17 January 1956, Douala
Marital status:	Married, 5 children and 1 dependant
Place of origin:	Province of Littoral, Department of Sanaga-Maritime, Arrondissement of Ngambé, District of Massock Song-Loulou, Canton of Logkat, Village of Saha
Highest degree earned:	Engineering degree in Petroleum Geology
Specialty in the engineering field:	Geology of oil and gas prospecting and exploitation
Civil service grade:	General engineer in the corps of mining and geological engineers; civil service category A2, grade IMG, index No. 1115
Date of entry on duty in the civil service:	10 November 1982
Address:	Ministry of Mines, Water and Energy Department of Mines and Geology Hydrocarbons Exploitation Control Service
Tel.:	223 34 04, ext. 278/995 27 69

Positions held

31 December 1987-16 October 1998: Deputy Chief, Mining Technology and Conservation Service

Since 16 October 1998: Chief, Hydrocarbons Exploitation Control Service

Certified Mine Inspector, appointed by decision No. 706/MINMEE/DMTNI/SAT of 22 October 1990

Inspector of classified establishments such as service stations, factory boilers, etc.

Academic background

Degree	Specialty	Date received	Name of establishment
Certificat d'Études primaires élémentaires (primary school certificate)	Primary school	1967	Primary school of the Catholic Mission of Dibamba, Douala 3
Brevet d'Études du premier cycle (lower secondary school certificate)	Lower secondary school studies, 1963-1972	1972	Collège Libermann, Douala
Probatoire, series C (prerequisite for the baccalaureate)	Upper secondary school studies, 1973-1974	1974	Collège Libermann, Douala
Baccalauréat (baccalaureate), series C	Upper secondary school studies, 1974-1975	1975	Collège Libermann, Douala
	Mathematics-Physics Section	1976	University of Yaoundé, Faculty of Sciences
	Russian language	1977	Preparatory Institute of the Russian Language, Baku, USSR
Engineering degree in Petroleum Geology	Geology of oil prospecting and exploitation	1982	I.M. Gubkin Institute of the Petrochemical and Gas Industry (*Grande École*, or higher school), Moscow, USSR
Russian language certificate	Russian language	1982	I.M. Gubkin Institute of the Petrochemical and Gas Industry (*Grande École*, or higher school), Moscow, USSR

Professional training

Year	Type of course	Duration	Topic	Place
1983	Training	9 months	- Petroleum geology - Field technology - Introduction to the petroleum business	Elf-Serepca Company, B.P. 2214, Douala
1986	Seminar	1 month	Calculation of petroleum reserves	I.M. Gubkin Institute of the Petrochemical and Gas Industry, Moscow, USSR
1992	Training	1 month	PRIMA	Institute of Management, Yaoundé
1993	Training	1 month	Project management	Institute of Management, Yaoundé
1994	Training	1 week	Introduction to the CIMENCAM cement company	CIMENCAM, Douala, B.P. 1323
1994	Training	1 month	Introduction to the SONEL electric company	SONEL Centre, Ombe/SW
1999	Seminar	1 week in April	Seminar on loss management in the transport of hydrocarbons and in petroleum facilities, given by Hydrac	Hydrac headquarters in Douala
2000	Seminar	1 week in July	Seminar on the application of the new petroleum regime in Cameroon, given by Beicip Franlap of France	National Hydrocarbons Corporation (SNH) headquarters, Yaoundé

Year	Type of course	Duration	Topic	Place
2000	Seminar	1 week in November	Seminar on slope-basin depositional systems, given by Phillips Petroleum	Hilton Hotel, Yaoundé
2000	Training	3 months	Bilingual training programme: The New Cambridge English Course	Pilot centre, Yaoundé
2001	Training	1 week in February	Course on seismic attributes and AVO, given by Geo Experts (Phillips)	Hilton Hotel, Yaoundé
2001	Training	1 week in August	Course on mapping subsurface structure, given by Oil and Gas Consulting International (USA)	Hilton Hotel, Yaoundé
2001	General Assembly of the International Oil Pollution Compensation Fund (IOPC Fund)	1 week in October	Presentation, to the IOPC Fund Executive Committee, of letters whereby the State of Cameroon terminated its membership of the 1971 Fund and became a member of the 1992 Fund	London
2003	Ditto	Ditto	Active participation	London

Career profile

Year	Department	Duties	Other information
1982	Department of Mines and Geology		Entry on duty: 10 November 1982
December 1983-December 1984	Department of Mines and Geology	Assigned to the gold project in East Cameroon	East Cameroon gold project with France's Bureau of Geological and Mining Research (BRGM)
January 1984-1985	Department of Mines and Geology	Assigned to the Haut-Lom project	Geological and mining research project in the Haut-Lom/ Adamaoua with France's BRGM

Year	Department	Duties	Other information
1987	Department of Mines and Geology	Assigned to the project in the Gulf of Mamfe	Ministerial mission for geological and mining research in the Gulf of Mamfe
31 December 1987	Department of Mines, Technology and Industrial Impacts	Appointed Deputy Chief, Mining Technology and Conservation Service	Areas of responsibility: - Quarry exploitation - Mining research - Mining impacts - Mining taxes - Mining regulations
2 months in 1996	Department of Mines, Technology and Industrial Impacts	Headed a geological and mining research mission near Lomié, focusing on nickel and cobalt	Provided technical assistance for the Ministry of Mines, Water and Energy to Geovic Cameroon, S.A.B.P. 5839, Douala (USA-based corporation)
October 1995, 1996, April 1998	Department of Mines, Technology and Industrial Impacts	Headed geological expeditions (missions) in the gold-bearing East Province	With the following companies: - Overseas (South Africa) - Burmex (Canada) - Global Mining (USA) - Bema Gold (Canada)
25 March 1998-15 April 1998	Department of Mines, Technology and Industrial Impacts	Geological and mining research in the permit 66 area, Kambele (belonging to Bema Gold)	Bema Gold (Canada)

Year	Department	Duties	Other information
16 October 1998	Department of Mines and Geology	Appointed Chief of the Hydrocarbons Exploitation Control Service	Areas of responsibility: - Cases of crude oil theft being prosecuted in the Kole, Moudi and Ebome courts - Security of offshore exploitation - Marine pollution by hydrocarbons - Accounting and statistics on hydrocarbons produced by Elf, Pecten and Perenco - Mining revenues
2005	Department of Mines and Geology	Appointed Chief of Service for the monitoring of the exploitation of oilfields and gas fields	Ditto

Other information

Unpublished professional papers

- Elements of strategic prospecting in the Haut-Lom/Adamaoua (Methods and results)
- Calculation of petroleum reserves: mining legislation and regulations in Cameroon

Languages (written, read and spoken)

Bassa, Douala, French, English, Russian

Stays abroad

Soviet Union, United States of America, Poland, Czechoslovakia, Germany, Belgium, France, Great Britain, Netherlands, Nigeria

Extra-professional activities

Sports, agriculture, Catholic religion, literature

Yuri Borisovitch Kazmin (Russian Federation)

Born on 3 September 1932 in the USSR, citizenship — Russian Federation.

Languages: Russian (mother tongue) and English (fluent).

Marital status: married with two children.

Yuri Kazmin has an MSc in Geology (1955 — Moscow Geological Prospecting Institute), an MSc in International Economics (1964 — All-Union Academy of Foreign Trade); and a PhD in International Law (1978 — Institute of State and Law, Academy of Sciences).

Mr. Kazmin has been a member of the Commission on the Limits of the Continental Shelf since 1997 and was its Chairman for five years (1997-2002). In 2005-2007, as a member of the subsidiary bodies, he participated in consideration of the submission by Ireland and of the joint submission by France, Ireland, Spain and the United Kingdom.

At present in his home country, the Russian Federation, he is an adviser to the Director of the Russian Federal Mineral Resources Agency. He is also the chief geologist of the petroleum exploration company JSC Severneftegas, which is engaged in offshore petroleum prospecting and exploration in the Barents Sea.

Mr. Kazmin started his professional career as a field geologist in 1955. In 1967-1971, he served in the United Nations Secretariat as a senior geologist at its regional commission in Bangkok.

Since 1971, he played a leading role in his country in the development of marine geology and geophysics: first, in 1971-1980, as deputy head of the Marine Geological Service and then, in 1980-1988, as head of the Marine Geological Service of his country. In 1988-1992, he was a consultant to the USSR (Russian) Government and in 1994-2000 an adviser to the Minister of Natural Resources of the Russian Federation.

Internationally, Mr. Kazmin served as a consultant to the International Seabed Authority (Kingston, Jamaica) and the Interoceanmetal Joint Organization of Eastern European countries (Szczecin, Poland).

From 1972 to 1982, as a member of the USSR delegation to the Third United Nations Conference on the Law of the Sea, Mr. Kazmin played an active role in elaborating the 1982 United Nations Convention on the Law of the Sea (continental shelf issues and the international seabed regime). From 1985 to 1987, he led negotiations with France, Japan, Canada, Italy, the Netherlands, Belgium, the United States of America, the United Kingdom and Germany on the problem of overlapping claims to deep seabed mining sites in the Pacific Ocean.

In 1988-1992, he was involved in the negotiations on the problems of the International Arctic Science Committee and the Arctic Environmental Protection Strategy. In 1983-1988 and 1995-2005, he was a member of his country's delegation at sessions of the Preparatory Commission and the International Seabed Authority.

During his career in various capacities Mr. Kazmin took part in negotiations on delimitation of maritime areas with Norway, the United States of America, Romania, Kazakhstan, Ukraine and Georgia.

Professional activity

2004 to present	Adviser to the Director of the Russian Federal Mineral Resources Agency
	Advisory services on legal, scientific and geological matters concerning marine research, prospecting and exploration.
2004 to present	Chief geologist of the petroleum exploration company JSC Severneftegas
	Offshore petroleum prospecting and exploration in the Barents Sea.
2001-2004	Consultant, Ministry of Natural Resources of the Russian Federation
	Advisory services on legal, scientific and technical matters concerning marine research, prospecting and exploration.
2001-2003	Expert, Interoceanmetal Joint Organization (Szczecin, Poland)
	International law aspects of exploration for mineral resources in international seabed areas.
1992-2001	Counsellor, Ministry of Natural Resources of the Russian Federation
	Advisory services on legal, scientific and technical matters concerning marine research, prospecting and exploration, and the international law of the sea. Preparation of national legislation concerning the continental shelf, EEZ and other areas under national jurisdiction, Ministry representative in parliamentary bodies for drafting of national legislation on marine mineral resources research and development. Coordination of environmental research projects in the pioneer area of the Russian Federation. International cooperation in marine research and prospecting.
1988-1992	Chief Expert, State Commission on Arctic and Antarctic Affairs of the Council of Ministers of the USSR Government (since 1992 — of the Russian Federation Government)
	Organization and coordination of government activities in the Arctic areas, including scientific research, geological and mining activities, environmental protection and international cooperation in the Arctic, organization of Antarctic research.
1980-1988	Director, Department of Ocean Mineral Resources, USSR Ministry of Geology
	Head of the USSR Marine Geological Service. Supervision and organization of USSR activities in the field of marine geology, prospecting and exploration, including petroleum, gas and hard minerals prospecting and exploration (continental shelf), research and prospecting for polymetallic nodules and other minerals (deep seabed areas), delimitation

	of the outer limits of the Russian continental shelf; geological research in Antarctica; research and development of marine prospecting and exploration technology; international relations and cooperation in marine research and in Arctic and Antarctic affairs.
1971-1980	Deputy Director, Marine Prospecting and Exploration Department, USSR Ministry of Geology
	Supervision and organization of activities in the field of marine geology, prospecting and exploration, including petroleum, gas and hard minerals prospecting (continental shelf), research and prospecting for polymetallic nodules and other minerals (deep seabed areas).
1967-1971	Economic Affairs Officer, Secretariat of the United Nations Economic and Social Commission for Asia and the Far East, Bangkok (Thailand)
	Organization and coordination of national and regional projects for offshore prospecting and exploration in the continental shelf areas of Thailand, Malaysia, Indonesia, the Philippines and Viet Nam. Coordination of regional projects on the compilation of geological maps for Asia and the Far East. Technical assistance to Nepal and India in the organization of geological research.
1955-1967	Senior Geologist, Aerogeology Enterprise, USSR Ministry of Geology
	Field geological survey and prospecting in the Pamir and Eastern Siberia regions.

Academic experience

1968-1971	Associate Professor of Geology, Chulalongkorn Royal University, Bangkok.
1972-1975	Lecturer on Marine Geology, Leningrad Mining Academy.
1992-1993	Lecturer on the law of the sea for trainees of the Preparatory Commission at the Interoceanmetal Organization, Poland.
1999	Lectures at the International Boundaries Research Unit, Durham University, United Kingdom.
2000	Lectures at seminars of the South Pacific Council in Chile, Peru, Colombia and Ecuador.

International experience and conferences

1971-1973	Member of the USSR delegation to the United Nations Seabed Committee.
1974-1982	Member of the USSR delegation to the Third United Nations Conference on the Law of the Sea.

1983-1988	Deputy head of the USSR delegation to sessions of the Preparatory Commission for the Seabed Authority and for the International Tribunal for the Law of the Sea.
1985	Head of the USSR delegation which negotiated with France and Japan the problem of the overlapping of pioneer sites in the Pacific Ocean.
1986-1987	Head of the USSR delegation which negotiated with Canada, Italy, the Netherlands, Belgium, the United States of America, the United Kingdom and Germany the problem of the overlapping deep seabed sites in the Pacific Ocean.
1988-1990	Negotiations with the Arctic States on the establishment of the International Arctic Science Committee (IASC).
1990-1991	Soviet representative to the IASC Council.
1991-1992	Meetings of the Arctic countries on the Arctic Environmental Protection Agreement.
1992-1993	Expert-consultant of the Interoceanmetal Joint Organization.
1995-2005	Member of the Russian delegation to meetings of the State parties to the United Nations Convention on the Law of the Sea and of the International Seabed Authority.
1997-2004	Consultant to the International Seabed Authority.
1997-2002	Chairman, Commission on the Limits of the Continental Shelf.
2002-2007	Member, Commission on the Limits of the Continental Shelf.

Publications

More than 24 publications on the geology and mineral resources of the continental shelf and deep seabed areas, and on the law of the sea.

Lu Wenzheng (China)

Academic field: Marine geophysics

Gender: Male

Date of birth: 25 June 1944

Place of birth: Chongqing, China

Matriculation: Department of Geophysical Prospecting, Beijing Geological Institute (now known as China University of Geosciences)

Degree: Regular undergraduate

Work unit: Second Institute of Oceanography (SIO), State Oceanic Administration

Professional title: Research fellow, supervisor of Ph.D. candidates

Postal address: No. 36, Baoshu North Rd., Hangzhou City, Zhejiang Province, China

Postal code: 310012

Telephone nos.: 0571-88076924-2320, 13605705540

Fax: 0571-88071539

E-mail: wzlu@zgb.com.cn; Lu_wenzheng@163.com

Educational background

Sept. 1949-July 1955	Shapingbei Primary School, Chongqing
Sept. 1955-July 1956	No. 31 Middle School, Chongqing
Sept. 1956-July 1961	No. 8 Middle School, Chongqing
Sept. 1961-Sept. 1967	Dept. of Prospecting, Beijing Geological Institute
Sept. 1975-Dec. 1976	Specialized studies, School of Chemistry and Chemical Technology, Shanghai Jiaotung University
Sept. 1980-July 1981	English-language training, Pre-Departure Training Department, Beijing Language Institute
Sept. 1990-July 1991	German-language training, Pre-Departure Training Department, Beijing Language Institute
Sept. 1991-Sept. 1992	Visiting scholar, Centre for Marine Geosciences Research (GEOMAR), Kiel, Germany

Professional career

October 1967	Assigned to Second Institute of Oceanography, State Oceanic Administration
1970-1977	Seawater Desalination Centre, Second Institute of Oceanography (SIO)
1978 to present	Centre for Geophysics, SIO (served as Director of Centre from 1986-1990)

1995	Professor
1996-2000	Scientist responsible for research on resource prospecting, China Ocean Mineral Resources Research and Development Association (COMRA)
April 1997	Selected as member of Commission on the Limits of the Continental Shelf at meeting of signatories to the United Nations Convention on the Law of the Sea
April 2002	Re-selected for a second term
2001-2003	Member of "Marine Resources Exploitation Technology" expert group, China National High Technology Research and Development Program ("863 Program")
2004-2005	Served on Committee of Experts, "Marine Resources Environment Area", China National High Technology Research and Development Program ("863 Program")

Major work

Served as one of several technical expert group leaders contributing to the Chinese Government's application to designate COMRA as a pioneer investor, submitted to the United Nations International Seabed Authority (Preparatory Committee); this application was approved by the International Seabed Authority (Preparatory Committee) in March 1991, resulting in the award to China of a 150,000 square kilometre area of the eastern Pacific Ocean to explore for polymetallic nodules.

As COMRA scientist responsible for marine minerals exploration research under the "Nine[ty-] Five" Plan, served several times as lead scientist aboard *Dayang No. 1* research vessel, and satisfactorily fulfilled responsibilities with regard to exploration and evaluation of nodule resources in China's polymetallic nodule exploration area as well as the investigation of target areas for cobalt-rich nodules in the central and western Pacific Ocean.

Led one of the technical expert groups contributing to the COMRA report on the [partial] relinquishment of the pioneer area, submitted by the Chinese Government to the International Seabed Authority in March of 1999; this report was adopted by the International Seabed Authority in August of 1999, resulting in the award to China of exclusive development rights to a 75,000 square kilometre polymetallic nodule contract zone.

Served as assistant leader of the expert group in charge of equipment modernization for, and leader of the expert group recommending equipment and technology for, the R/V *Dayang No. 1*.

Participated in the drafting of such documents as "Rules of Procedure of the Commission on the Limits of the Continental Shelf", "Scientific and Technical Guidelines of the Commission on the Limits of the Continental Shelf", and "Modus Operandi of the Commission on the Limits of the Continental Shelf".

Participated in the work of subcommittees of the Commission on the Limits of the Continental Shelf considering proposals by Brazil and (jointly) by Ireland, Great Britain, France and Spain on delimitation of the continental shelf.

In the interest of protecting China's legal rights and promoting domestic preparations for the exploration and delimitation of the outer continental shelf, made numerous proposals to the relevant authorities regarding the foregoing projects and participated in writing an application to lead the undertaking; the request was approved on 6 July 2002 by Premier Zhu Rongji, leading to the initiation of the "706" project.

Representative publications

1. Research papers:

(a) Technical report supporting Chinese Government application requesting that International Seabed Authority (Preparatory Committee) register COMRA as pioneer investor (head of technical expert group)

(b) Investigative reports on marine mineral resources exploration and research voyages DY95-6 and 8 (main author)

(c) Investigative report on marine mineral resources exploration and research voyage DY95-10 (main author)

(d) Investigative report on marine mineral resources exploration and research voyage DY95-11 (main author)

(e) General report on "Nine[ty-] Five" marine mineral resources exploration and research (item 02) (main author)

(f) Report on partial relinquishment of Chinese pioneer area, submitted by COMRA to International Seabed Authority (head of technical expert group)

(g) Document compilation for United Nations Commission on the Limits of the Continental Shelf (first assistant editor; participated in above-mentioned drafting work)

(h) The continental shelf — the convergence of science and law (translator) (comprehensive draft)

(i) 863 Program discussion topic: Key technology for multiple-use unmanned deep-sea remotely operated vehicle (ROV) systems (discussion group leader)

(j) United Nations Convention on the Law of the Sea, "Definition of the Continental Shelf" (article 76): legal theory and critical analysis of approved scope of cobalt-rich nodule zone

2. Representative monographs:

(a) Characteristics of magnetic lineation and tectonic evolution of the South China Sea basin. Lu Wenzheng et al., *Haiyang xuebao* [Marine studies] 9.1, 1987

(b) Characteristics of the magnetic field of the southeast Pacific and its tectonic evolution. Lu Wenzheng et al., 1989; *Proceedings of the first symposium on Antarctic research* 408-411, Shanghai Science and Technology Press

(c) Variations in seafloor topography and its tectonic origin in the eastern and western parts of the Chinese pioneer area. Lu Wenzheng, 2001; *Proceedings of the COMRA tenth-anniversary symposium* (Ocean Press)

(d) Characteristics of polymetallic deposits in the Chinese pioneer area and the exploration strategy for the third phase. Lu Wenzheng, 2001; *Proceedings of the COMRA tenth-anniversary symposium* (Ocean Press)

(e) Characteristics of distribution of cobalt-rich nodules in the central Pacific seamount zone and preliminary evaluation of prospects for their exploitation as resources. Lu Wenzheng, 2001; *Proceedings of the COMRA tenth-anniversary symposium* (Ocean Press)

(f) [English title supplied] Characteristics of the distribution and control factors of polymetallic nodule in the west region of CCFZ. Lu Wenzheng, Engineering Science, China Academy of Engineering 2004, v. 2

Isaac Owusu Oduro (Ghana)

Environmental Protection Agency
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Residence: C13/A/D46
Sakumono Estates
Phone: +233 244 678488
E-mail: kowus1@yahoo.com/IOduro@epaghana.org

Date of birth: 13 March 1953

Marital Status: Married

Children: Four

Nationality: Ghanaian

Languages: English, Russian and French

Educational background

November 2006	Gimpa, Greenhill, Accra — Ghana
	Obtained Certificate in Strategic Management.
December 2005	Participated in a Training course for delineation of the outer limits of the continental shelf beyond 200 nautical miles and for preparation of submission of a coastal state to the CLCS organised by DOALOS of the UN and Ministry of Foreign Affairs, Accra. Obtained certificate of participation on successful completion of the training course.
May 2004	Southampton Oceanography Centre, Southampton-UK
	Obtained certificate of successful completion of study programme on "Article 76 of the UN Convention on the Law of the Sea (UNCLOS)".
October 2003	CENTEK, Lulea — Sweden
	Obtained certificate of participation in course/workshop "Mining and the Environment".
October 1992	German Geological Survey, Dodoma — Tanzania German Geological Survey, Hannover — Germany
	Obtained certificate of participation in workshop "Methods of Regional Geological Mapping in Africa".
June 1981	Lumumba Varsity, Moscow — Russia
	Obtained MSc. Degree (Diplomme) in Applied Geology
	Obtained certificate as interpreter (Russian-English)
June 1974	Ghana Secondary School, Koforidua — Ghana

	Obtained the Advanced Level Certificate (GCE "A" Level) in Mathematics, Economics, Geography and General Paper.
June 1972	Ghana Secondary School, Koforidua — Ghana
	Obtained the West African School Certificate (GCE "O" Level) with credit passes in English Literature, English Language, Mathematics, Add. Mathematics, General Science, Add. General Science and Geography.

Work experience

June 2000 till date	Environmental Protection Agency, Accra — Ghana
	Principal Programme Officer, Mining Department
	Responsible for review of Environmental permit applications for mining proposals, review of impact assessment reports, company EMP's, annual environmental reports, monitoring of mine operations, investigation of complaints and incidents in the mining industry.
Sept. 1997-May 2000	Teberebie Goldfields Company Ltd.
	Senior Exploration Geologist
	Responsible for the evaluation of resource potential of gold concession (Geological mapping, Soil sampling, Trenching, Interpretation of data, Report preparation etc), Administration of camp of fifty skilled and unskilled labour.
July 1996-June 1997	Ashanti Exploration Company Ltd.
	Exploration Geologist
	Responsible for the evaluation of resource potential of gold concession (Geological mapping, Soil sampling, Trenching, Interpretation of data, Report preparation etc).
Sept. 1981-June 1996	Ghana Geological Survey
	Regional Geologist
	Rose from Assistant Geologist to Regional Geologist in charge of Northern, Upper East and Upper West Regions of Ghana.
	Was responsible for Regional Geological Mapping of the three Northern Regions, offered valuable geological information to the public and the government through reports and bulletins.
Sept. 1974-June 1975	Ghana Secondary School, Koforidua
	Mathematics Tutor

Language proficiency

Read, write and speak fluent English Language.

Speak, read and write fairly well Russian Language.

Have working knowledge in French.

Accomplishments

Taught on part-time basis, general geology to first year Agriculture students of the University for Development studies, Tamale in Northern Ghana.

Hold a certificate as a local preacher of the Methodist church, Ghana.

Computer skills

Have skills in Word, Excel, Power Point and use of the Internet.

Membership organization

Member, Ghana Institution of Geoscientists.

Publications

Industrial Mineral Resources of Ghana and their contribution to the Economic Recovery Programme (at the Annual Conference of Ghana Institution of Geoscientists, 1982).

Management of Land use conflicts in Mining areas of Ghana (an Article in the Environmental Protection Agency (EPA) of Ghana Newsletter.

An overview of the offshore drilling operations in the Western Tano contract area by Dana Petroleum (GH) Ltd. and Ghana National Petroleum Corporation (GNPC).

Park Yong-ahn (Republic of Korea)

Date of birth: 1 January 1937

Nationality: Republic of Korea

Sex: Male

Marital status: Married

Contact information

Mailing addresses:

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E-mail: yap@snu.ac.kr

Current positions

Professor Emeritus, Seoul National University

Senior Researcher, Research Institute of Oceanography, Seoul National University

Member, Commission on the Limits of the Continental Shelf (1997-Present)

Education

PhD in Marine Geology, Kiel University, Federal Republic of Germany (1973)

M.S. in Sedimentary Geology, Brown University, United States (1966)

M.S. in Stratigraphy and Sedimentation, Seoul National University, Republic of Korea (1964)

B.S. in Sedimentation, Seoul National University, Republic of Korea (1961)

Professional experience

2005-present	Honorary Professor, Jilin University, China
2002-present	Professor Emeritus, Seoul National University
2002-present	Technical advisor, Qingdao Institute of Marine Geology, MLR, Qingdao, People's Republic of China
1996-present	Chairman, IGCP Korean National Committee, UNESCO
2001-2004	President, International Society for Yellow Sea Research
1998-2002	Member, Ocean Drilling Project, National Advisory Committee, KIGAM

1997-2002	Chairman, Korea-China Joint Committee for Basic Science Research, KOSEF
1967-2002	Professor, Department of Oceanography, Seoul National University
1987-1993	President, Korean Quaternary Association (KOQUA)
1983-1985	President, Korean Society of Oceanography
1975-1985	Member, Republic of Korea Delegation to the Intergovernmental Oceanographic Commission (IOC), UNESCO
1982-1984	Vice Dean, College of Natural Sciences, Seoul National University

Languages

Korean, English, German

Honours

Award from the National Academy of Science, Republic of Korea (2006)

Order of Merit (Red Stripes) from the President of the Republic of Korea (2001)

Note of Commendation for Geological Oceanography from the President of the Republic of Korea (1989)

Distinguished Scientific Paper Award, Korean Society of Oceanography (1987)

Major publications

Park, Y. A. and H.-I. Yi, 1995. Late Quaternary Climatic Changes and Sea-level History along the Korean Coasts. J. Coastal Res. Spec. Issue No. 17: Holocene Cycles: Climate, Sea Levels, and Sedimentation, 163-168.

Park, Y. A., Chang, J. H., Lee, C.H. and Han, S. J., 1995. Controls of storm and typhoon on Chenier formation in Komso Bay, Western Korea. J. Coastal Res., 12(4): 817-822.

Park, Y. A., Choi, K. S. and Choi, J.Y., 1995. Signatures of the sea-level fluctuations recorded in the innershelf deposits in the eastern margin of the Yellow Sea (Korean West Sea). Yellow Sea Research, 1: 17-24.

Park, Y. A., D. I. Lim, B.K Khim, J. Y. Choi and S. J. Doh, 1998. Stratigraphy and Subaearial Exposure of Late Quaternary Tidal Deposits in Haenam Bay, Korea (Southwestern Yellow Sea). Estuarine Coastal and Shelf Science, 47: 523-533.

Park, Y. A. and K. S. Choi, 2000. Late Quaternary stratigraphy of the muddy tidal deposits, west coast of Korea. In Terry Healy and Ying Wang (eds.) Muddy Coasts of the World Processes, Deposits and Function. Ch. 21. Elsevier (Amsterdam) (in press).

Y. A. Park, Jin-Yong Choi and S. Gao, 2001. Spatial variation of suspended particulate matter in the Yellow Sea, Geo-Marine Letters, 20(4), pp. 196-200.

Y.A. Park and K.S. Choi, 2002. Late Quaternary stratigraphy of the muddy tidal deposits, west coast of Korea, Muddy Coast of the World, Elsevier Science B.V. pp. 391-409.

In addition to those listed above, Professor Park has published a great number of important articles and research papers on marine geology throughout his professional career.

Books

Park, Y. A., et al., 1992. Earth Science I and II, 280 pp. by Dong-A Press.

Park, Y. A., 1998. Principles of Oceanography, 417 pp. by Seoul National University Press.

Park, Y. A., 1999. The Ocean Atlas (translation), 64 pp. by Kirinwon (Seoul, Korea).

Park, Y. A., 2001. The Quaternary Environment of Korea, by Seoul National University Press.

Park, Y. A., 2001. The Tidal Environment of Korea, by Seoul National University Press.

Lindsay Murray Parson (United Kingdom of Great Britain and Northern Ireland)

Date of birth: 30 August 1954

Present position

Leader of the United Nations Convention on the Law of the Sea Group, National Oceanography Centre, Southampton, UK

Qualifications

Honours Degree, Liverpool Geology Department (1976)

PhD awarded, Liverpool University (1982).

Awards and current positions

1977 to present	Fellow of the Geological Society of London
1990	Presented with the Geological Society of London Lyell Award
1992 to present	Chartered Geologist of the Geological Society of London
1996 to present	European Chartered Geologist
1996 to present	Member of the Editorial Board of Marine Geology
2001 to 2006	UK member of the United Nations Legal and Technical Commission at the International Seabed Authority, Kingston, Jamaica. Vice-Chairman in 2005, and Chairman in 2006
2002 to present	UK member of the Intergovernmental Oceanographic Commission (IOC) Advisory Board of Experts on the Law of the Sea (ABE-LOS)
2005 to present	UK representative on the MOMAR (EU mid-ocean ridge) Steering Group with responsibility for marine protection areas on mid-ocean ridge settings in the North Atlantic

Professional experience

Mr. Parson has undertaken active marine geophysical research related to continental shelf and margin geology since 1980. He has considerable marine surveying and sampling expertise, and has participated in thirty-six scientific cruises since 1980, including twelve as principal scientist, and nine as invited UK expert in international programmes.

From 1980 he has provided technical advice for key UK government departments (Department of Trade and Industry, Foreign and Commonwealth Office) on continental shelf and related issues of the UN Convention on the Law of the Sea.

He has been Project Manager for the UK maritime delimitation survey and interpretation programme since 1996. He was a member of UK delegations to quadrilateral and bilateral discussion meetings with neighbouring coastal states on continental shelf and maritime territorial delimitation issues. Since 2001, he has been technical lead of UK Article 76 submissions to CLCS.

Since 1999 Mr. Parson has undertaken commissioned research programmes for a number of coastal states investigating potential for territorial sovereignty beyond 200 nautical miles under UNCLOS.

Presentations at key UNCLOS conferences (within last three years)

2003 — "Non-hydrocarbon resources of the extended continental shelf": Invited presentation. In: M. H. Nordquist, J-N. Moore and T. H. Heidar (Eds.) Legal and scientific aspects of continental shelf limits. Proceedings of the 25-27 June 2003 conference, pp. 423-430.

2003 — "Deep water non-living resources": Invited. ABLOS Conference, Monaco, 28-30 October 2003 "Addressing Difficult Issues in UNCLOS".

2004 — "Article 76 of UNCLOS: Prime driver for significant continental margin research, or a data black hole?" Invited Key Lecture: "Geo-political aspects of continental margins" Special Session on Article 76 at the 32nd International Geological Congress, 20-28 August, Florence, Italy.

2004 — "Continent-Ocean Transition research in the context of UNCLOS continental shelf delimitation" Joint presentation with Dr. R. Edwards (NOC): "Geo-political aspects of continental margins" Special Session on Article 76 at the 32nd International Geological Congress, 20-28 August, Florence, Italy.

2004 — ISA workshop for the establishment of environmental baselines at deep seafloor cobalt-rich crusts and deep seabed polymetallic sulphide mine sites in the Area, for the purpose of evaluating the likely effect of exploration and exploitation on the marine environment, 6-10 September, ISA, Kingston, Jamaica.

2005 — Invited speaker at "Symposium on Problems of the Outer Continental Shelf" — International Tribunal for the Law of the Sea, Hamburg, Germany (September 2005). Title: "The Commission for the Limits on the Outer limits of the Continental Shelf — How is it working?"

2005 — Invited speaker at the Jackson School of Geosciences Symposium on UNCLOS University of Texas, Austin, USA (October 2005). Title: "Article 76 of the United Nations Convention on the Law of the Sea".

2005 — Invited speaker at the 27th International Geological Congress, Florence (August 2005). Title: "Article 76 of UNCLOS: Prime driver for significant continental margin research, or a data black hole?"

2005 — Invited tutorial presentation on "Delimitation of the juridical continental shelf" At ABLOS Conference (October 2005): Marine Scientific Research and the Law of the Sea: the Balance between Coastal State and International Rights.

2005 — Invited presentation at Africa Upstream 2005 conference (November 2005). Title: "Africa's Deepwater EEZ Hydrocarbon potential, and Claims beyond 200 miles under UNCLOS", Cape Town, South Africa.

2005 — Co-convenor of Special Session at the American Geophysical Union Conference "UNCLOS and Continental Margins: Geodynamic constraints and implications for the legal continental shelf" (December 2005). Presentation title: "Continental Margins and the Law of the Sea — an 'Arranged Marriage' with Huge Research Potential". San Francisco, USA.

2006 — Invited presentations at (1) the International Symposium on Scientific and Technical Aspects of the Outer Limits of the Continental Shelf beyond 200 Nautical Miles (MFA, Japan and United Nations University, March 2006). Title: "Support for developing states — ideas to support countries with problems". Tokyo, Japan; (2) Meeting of technical experts on Article 76 of UNCLOS (Japanese Hydrographic Office, Tokyo, March, 2006). Title: "Developing the desk-top study for developing countries".

2006 — Invited tutor at the UNEP/GRID Arendal training workshop on "Determining outer limits of the continental shelf for West Africa states" (Nairobi, Kenya. March 2006).

Publications — selected recent peer-reviewed papers additional to above conference proceedings/abstracts

These are listed in the National Oceanographic Library (UK Oceanographic Facility). NOL records 286 publications of Dr. Parson since 1985.

Fernando Manuel Maia Pimentel (Portugal)

Date of birth: 24 July 1960

Languages

Portuguese: native speaker

English: fluent, spoken and written

French: fair, spoken and written

Spanish: easy understanding

Education and professional experience

1984-1986

Degree in Naval Sciences (major in Oceanology), Portuguese Naval Academy, Lisbon, 1984.

Executive Officer of a coastal patrol vessel of the Portuguese Navy, 1984-1986.

After leaving the Naval Academy, spent two years in sea duty, on missions of fisheries control, search-and-rescue and anti-smuggler actions.

1986-1989

Specialization course in Hydrography (FIG/IHO category A), Instituto Hidrográfico, Lisbon, 1986-1987.

Second in Command of a Hydrographic Team, Portuguese Navy, 1987-1989.

Participation in several hydrographic surveys (portuary, coastal and oceanic) in continental Portugal, the Azores and Madeira archipelagos and the Republic of Cape Verde. This included the planning, field execution (both as surveyor and survey director) and data processing.

1989-1992

Degree of Master of Science in Physical Oceanography (major and thesis in Underwater Acoustics), Naval Postgraduate School, Monterey, California, United States of America, 1989-1991.

Degree of Hydrographic Engineer (with final report on Multibeam Echosounder Systems), Instituto Hidrográfico/Portuguese Engineering Association, Lisbon, 1991-1992.

The main product of this educational period was the development of guidelines for the definition of decision criteria for the future acquisition of multibeam echosounder systems for the Instituto Hidrográfico and the Portuguese Navy survey ships. For this, the theoretical studies were complemented with short cruises on board some foreign ships which were already operating multibeam echosounders, and talks with several equipment manufacturers.

1992-1998

Officer-in-Charge for "Hydrographic Equipments, Systems and Methods", Hydrography Division, Instituto Hidrográfico, Lisbon, 1992-1997.

Officer-in-Charge for "Geomatics" (Hydrographic Data Management and Nautical Charting), Hydrography Division, Instituto Hidrográfico, Lisbon, 1997-1998.

Officer-in-Charge for special projects, Hydrography Division, Instituto Hidrográfico, Lisbon, 1992-1998:

- Differential GPS for hydrography, 1992-1996
- Multibeam echosounder systems, 1992-1997
- Hydrographic data acquisition and processing systems, 1995-1997
- GPS for geodesy, 1995-1998
- Quality assessment of hydrographic data, 1995-1998
- Electronic Navigational Chart (ENC) production system, 1997-1998

Was in charge of the technical aspects of the re-equipment of the Instituto Hidrográfico with regard to the acquisition and processing of hydrographic data. This included the renewal of equipments for marine and land positioning, echosounders systems and the respective survey control and processing software. Attended the first Coastal Multibeam Training Course offered by the University of New Brunswick, Canada. The main achievement was the installation, extensive testing and utilization of a multibeam echosounder with a combined GPS/inertial system for positioning and attitude, with the survey data being transferred to the computer-assisted cartography system CARIS. Was also in charge of the definition of the data flow and production system for the ENC. Author of many internal reports and norms concerning the application of new methods, equipment and software to hydrographic surveying in accordance with internationally accepted standards.

1998-2005

Head of the Hydrography Division, Instituto Hidrográfico, Lisbon, Portugal.

Was in charge of the planning and quality control of hydrographic surveys, hydrographic data management and nautical chart production (in paper and ENC), and head of the Representative Group for IHO Affairs. Was involved in several projects using CARIS, in particular its module CARIS LOTS, specially designed for UNCLOS applications. Was also involved in the definition and acquisition of hydrographic equipments for the survey ships of the Portuguese Navy, namely, as Chairman of the Commissions for the acquisition of the deepwater multibeam echosounder, the deepwater singlebeam echosounders, the positioning and attitude systems and the ECDIS. Responsible for the installation of these equipments, including the deepwater multibeam echosounder and its experimental utilization and performance assessment. Planning of several multibeam hydrographic surveys, for nautical charting, for the project of extension of the continental shelf or in cooperation with several Portuguese and foreign scientific institutions.

2005

Technical Coordinator of the Task Group for the Extension of the Continental Shelf, Ministry of National Defense, Lisbon, Portugal.

Special assignments and activities

Member of the IHO Working Group on the IHO Standards for Hydrographic Surveys (S-44), 1994-2001.

Active participant in the work of the technical experts group that defined the international standards for the planning, execution and processing of hydrographic surveys and produced the fourth edition (1998) of the IHO publication S-44.

Member of the IHO Worldwide Electronic Navigational Chart Database (WEND) Committee, 1999-2003.

Active participant in the work of the IHO WEND Committee, regarding the international development and harmonization of procedures for the production and delivery of ENC.

Representative of the Instituto Hidrográfico for the Eastern Atlantic Hydrographic Commission (EAtHC) and the Southern Africa and Islands Hydrographic Commission (SAIHC), 1994-2003.

Participated as a technical expert for hydrography and cartography in the IOC/IHO project entitled "International Bathymetric Chart of the Central and Eastern Atlantic" (IBCEA), Instituto Hidrográfico, Lisbon, 1998-2004.

Instructor for the Specialization Course in Hydrography (Geodesy, Geodetic Surveying, Hydrographic Surveying and Digital Data Processing), Instituto Hidrográfico, Lisbon, 1993-2004.

Supervisor of final graduation reports of students in geographic Engineering of the University of Lisbon, in: Differential GPS (1992), Geodetic Methods with GPS (1995) and Digital Cartography (2000-2003).

Supervisor of final reports for the degree of Hydrographic Engineer of Portuguese Naval Officers with the degree of Master of Engineering in Geodesy and Survey Engineering (University of New Brunswick, Canada), in: Quality Assessment of Multibeam Data (1998), Real Time Kinematic GPS (2000) and ENC Production (2000).

Professor (Probability and Statistics, Geodesy and Chart Projections, Analysis and Processing of Time Series, Underwater Acoustics), Universidade Lusófona de Humanidades e Tecnologias, Lisbon, 1998-2004.

Member of the EAtHC Action Team for Cooperation in Hydrography with Western African Countries, Cape Verde, 2003.

Military career

Ranks

Midshipman, 1984.

Second Lieutenant, 1985.

First Lieutenant, 1988.

Lieutenant-Commander, 1993.

Commander, 2001.

Decorations

Medal of Merit (Second Class), 1996.

Medal of Distinguished Services (Silver), 1999.

Medal of Exemplar Behavior (Silver), 2003.

Special courses and conferences/meetings

Special courses

Coastal Multibeam Training Course, University of New Brunswick, St. Andrews, Canada, 1994.

SIMRAD EM-950 Multibeam Echosounder Operation and Maintenance Courses, SIMRAD AS, Instituto Hidrográfico, Lisbon, 1995.

SIMRAD MERLIN/NEPTUNE Software Operator Course, SIMRAD AS, Instituto Hidrográfico, Lisbon, 1995.

General Naval Warfare Course, Portuguese Naval War College, Lisbon, 1996.

International conferences/meetings

HYDRO '92 Copenhagen, Denmark, 1992.

US-HYDRO '94, Norfolk, Virginia, United States of America, 1994.

SIMRAD FEMME '95, Biloxi, Mississippi, United States of America, 1995.

SIMRAD FEMME '97, Monaco, 1997.

Workshop on Coastal and Inland Waterways (Electronic Chart Display and Information System (ECDIS), Norfolk, Virginia, United States of America, 2001.

US-HYDRO '01, Norfolk, Virginia, United States of America, 2001.

IHO conferences/meetings

Fourth Conference of the Eastern Atlantic Hydrographic Commission, Lisbon, 1994.

Fifteenth International Hydrographic Conference, Monaco, 1997.

Second Meeting of the IHO Working Group on S-44, Monaco, 1997.

European Regional Electronic Navigational Chart (RENC) Coordination Centre, Advisory Committee, Stavanger, Norway, 1999.

Second Conference of the Southern Africa and Islands Hydrographic Commission, Cape Town, South Africa, 1999.

Fifth IHO WEND Meeting, Monaco, 2000.

IHO/Industry Interface Meeting, Monaco, 2000.

Second Extraordinary International Hydrographic Conference, Monaco, 2000.

IHO Strategic Planning Working Group Informal Meeting, Monaco, 2000.

Sixth Conference of the Eastern Atlantic Hydrographic Commission, Cadiz, Spain, 2000.

IHO Meeting for Cooperation in Hydrographic and Aids to Navigation with the Western and Central Africa Countries, Lisbon, 2001.

European RENC Advisory Committee, Paris, 2001.

Sixth IHO WEND Meeting, Norfolk, Virginia, United States of America, 2001.

Third Conference of the Southern Africa and Islands Hydrographic Commission, Maputo, 2001.

Sixteenth International Hydrographic Conference, Monaco, 2002.

Seventh Conference of the Eastern Atlantic Hydrographic Commission, Lisbon, 2002.

GEBCO Centenary Conference, Monaco, 2003.

Seventh IHO WEND Meeting, Lima, Peru, 2003.

Activities related to UNCLOS

Technical expert for hydrography and cartography in the initial evaluation studies by the Portuguese Commission for the Continental Shelf, in accordance with UNCLOS (hydrographic coverage and use of CARIS LOTS), Instituto Hidrográfico, Lisbon, 1998-2000.

Technical cartographic expert in the preparatory studies to the delineation of the East Timor coastline and jurisdictional waters, Instituto Hidrográfico/Portuguese Ministry of Foreign Affairs, Lisbon, 2000-2001.

Technical expert for hydrography and cartography in studies related to the Portuguese coastline and jurisdictional waters, in accordance with UNCLOS, Instituto Hidrográfico / Portuguese Ministry of Foreign Affairs, Lisbon, 2000-2001.

Technical advisor to the Chairman of the Portuguese Commission for the Continental Shelf, Ministry of National Defense, Lisbon, 2001-2004.

Elected Member of the CLCS, SPLOS, New York, 2002.

Participation in the Conference on Legal and Scientific Aspects of Continental Shelf Limits, Reykjavik, Iceland, 2003.

Participation and co-presentation of a paper in the ABLOS Conference "Addressing Difficult Issues in UNCLOS", Monaco, 2003.

Coordinator of the Working Group on the Desk-top Study for the Extension of the Portuguese Continental Shelf, Ministry of Defense, Lisbon, 2003-2004. He was the work coordinator, the hydrographic and cartographic expert and responsible for the final report of the Portuguese Desk-top Study for the extension of the continental shelf. This report was presented to the Portuguese Commission for the Continental Shelf in January 2004.

Technical Coordinator of the Task Group for the Extension of the Continental Shelf of Portugal (TGECS-PT) and direct responsible for hydrography, cartography and GIS, dealing with the planning and data processing of the hydrographic surveys and coordinating all the technical activities, including in geology and geophysics, as

well as making the connection with the legal section of the TGECS-PT, since March 2005.

Member of the Sub-commission for consideration of the Submission presented by Australia, CLCS, New York, 2005.

Invited Specialist on Hydrography to the Sub-commission for consideration of the Submission presented by Ireland, CLCS, New York, 2005.

Participation and co-author of a presentation ("The Work for the Extension of the Portuguese Continental Shelf") in the 11th Meeting of the Geographic Engineers, Portuguese Association of Engineering, Porto, Portugal, 2005.

Participation in the American Geophysical Union 2005 Fall Meeting, including the session "Continental Margins: Geodynamic Constraints and Implications for the Legal Continental Shelf under UNCLOS", San Francisco, California, USA, 2005.

Member of the Portuguese delegation to the consultations with Spain on the common limits of the Continental Shelf, Madrid, Spain, 2006.

Present fields of interest

Geomorphometry, Geostatistics and Geophysical Signal Processing.

Computational Intelligence Methods (Soft Computing) in GIS data analysis.

Publications

In English

"Analytical modeling of the deep ocean vertical stability and comparison with data collected off Point-Sur". Internal report, Department of Oceanography, Naval Postgraduate School, Monterey, California, United States of America, 1991.

"Computation of acoustic normal modes in the ocean using asymptotic expansion methods". Master's thesis, Naval Postgraduate School, Monterey, California, United States of America, 1991.

"Overview of the Multibeam Hydrographic Surveying project at the Portuguese Hydrographic Office for Nautical Chart Update", et al. Proceedings of SIMRAD FEMME '99, Oslo, 1999.

"Multibeam accuracy tests at dry dock", et al. Hydro International, vol. 5, no. 7, October 2001.

"EM 3000 Multibeam Echosounder Evaluation Test at Dry Dock", et al. Proceedings of SIMRAD FEMME '03, Cadiz, Spain, 2003.

"Reflecting on the Legal-Technical Interface of Article 76 of the LOSC: Tentative Thoughts on Practical Implementation", et al. Proceedings of ABLOS 2003 Conference, Monaco, 2003.

In Portuguese

"Acoustic methods for the exploration of resources and bottom morphology of the exclusive economic zone". Proceedings of the V Jornadas Técnicas de Engenharia Naval, Instituto Superior Técnico, Lisbon, 1992.

"Multibeam Echosounder Systems". Anais do Instituto Hidrográfico, Lisbon, 1992.

"Introductory Course to Multibeam Echosounders". Internal instruction manual, Instituto Hidrográfico, Lisbon, 1994.

"Methods for correction of hydrographic surveys with automated data acquisition systems". Internal report, Instituto Hidrográfico, Lisbon, 1995.

"Installation of a multibeam echosounder system on the R/V Coral". Internal report, Instituto Hidrográfico, Lisbon, 1995.

"Correction of hydrographic surveys for real sound speed profiles". Internal norm, Instituto Hidrográfico, Lisbon, 1996.

"Calibration of echosounders in oceanic surveys". Internal norm, Instituto Hidrográfico, Lisbon, 1997.

"Horizontal control with GPS". Internal norm, Instituto Hidrográfico, Lisbon, 1997.

"Planning, execution and processing of hydrographic surveys". Internal norm (in accordance with IHO S-44, 4th Edition), Instituto Hidrográfico, Lisbon, 1999.

"The Extension of the Continental Shelf beyond 200 Nautical Miles", et al. Revista da Armada, no. 364, Lisbon, 2003.

"Computer Assisted Planning of Deepwater Multibeam Hydrographic Surveys", et al. Proceedings of the IV Conference of Cartography and Geodesy, Portuguese Association of Engineering, Lisbon, 2005.

"Error Estimation for Multibeam Echosounders", et al. Anais do Instituto Hidrográfico, Lisbon, 2005.

Sivaramakrishnan Rajan (India)

National Centre for Antarctic and Ocean Research, Headland Sada, Vasco-da-Gama, Goa 403 804, India

Phone: +91-832-2525511

E-mail: rajan@ncaor.org

Born 25 May 1955, Trivandrum, India

Indian national

Married, with two daughters

Education

1995	Ph. D (Geology & Geophysics) University of Hawaii, Honolulu, Hawaii, USA Dissertation topic: Climatic controls on cyclic carbonate sedimentation in enclosed basins: Plio-Pleistocene Black Sea and Ala Wai Canal, Oahu
1977	M. Sc. (Geology) University of Kerala, Trivandum, India Thesis topic: Structural history of the Waynad Sargurs around Iritti, Kerala
1975	B. Sc. (Geology) University of Kerala, Trivandum, India

Professional training

1990-94	Degree Fellow in the Program on Environment East-West Center, University of Hawaii
1989	Short-term Course on Coastal Engineering Ocean Engineering Center, Indian institute of Technology, Chennai, India
1983	Photo-interpretation and Remote Sensing for Geotechnical Surveys Indian Institute of Remote Sensing, Department of Space, Dehradun, India
1980-81	Field Orientation Course in geological and geophysical Surveys Geological Survey of India Training Institute

Professional positions held

Since 1998	Scientist and Project Director (Indian Continental Shelf Project) National Centre for Antarctic and Ocean Research, Headland Sada, Goa, India
1997-95	Geologist Senior Marine Wing, Geological Survey of India, Cochin, India
1990-84	Geologist Marine Wing, Geological Survey of India, Cochin, India

1984-79	Geologist Engineering Geology Division, Geological Survey of India, Rajasthan, India

Honours, awards

1993-94	J. Watumull Merit Scholarship for the Most Outstanding graduate student in the Dept. of Geology and Geophysics, University of Hawaii
1990-94	East-West Center fellowship for doctoral research at the University of Hawaii
1975-77	Government of India National Merit Scholarship for academic excellence
1972-75	Kerala University Award and Merit Scholarship for academic excellence

Professional experience related to continental shelf studies in the context of UNCLOS 1983

1999-present	Project director, Indian Continental Shelf project: A lead role in all the facets of management and implementation of the project comprising (a) a comprehensive desktop study of the various scientific and technical issues involved in obtaining the requisite data for defining the outer limits of the Indian continental shelf, (b) planning the various aspects of the requisite data collection, processing, synthesis and interpretation, (c) initiation, co-ordination and execution of a major multi-institutional national endeavour of marine geological/geophysical surveys in the Project area, including budgeting and scheduling, (d) data synthesis and documentation as per the guidelines of the CLCS, and (e) establishment of a fully-functional state-of-the-art marine geophysical data archival and processing Centre at the National Centre for Antarctic and Ocean Research, Goa.
June 2006	Carried out at the request of the Union of Myanmar to the Government of India, a comprehensive desktop study pertaining to the delineation of the outer limits of the continental shelf of Myanmar beyond 200 M, based on public domain data.
October 2005	Organized a five-day training workshop on "Delineation of the outer limits of the continental shelf" for scientists and officials from the Union of Myanmar, at Goa.
April 2005	Organized a five-day training workshop on "Delineation of the outer limits of the continental shelf" for scientists from Sri Lanka, at Goa.
Sept. 2001	Delivered a series of lectures on (a) Evidence to the Contrary (b) Determination of the Foot of the Slope (c) Project Planning (d) National Desktop study and (e) Seafloor Highs, at the five-day training programme on UNCLOS and Delineation of the Continental Shelf Limits, organized by the National Hydrographic

Office (India) and the Society for Indian Ocean Studies under the ITEC Programme at Delhi.

Participation in international programmes/training

March 2006 — International Symposium on the "Scientific and Technical aspects on the establishment of the Outer limits of the Continental shelf" organized by the Ministry of Foreign Affairs of Japan and the United Nations University, Tokyo, Japan.

May 2005 — Training course on "The outer limits of the continental shelf beyond 200 nautical miles and for preparation of a submission of a coastal State to the Commission on the Limits of the Continental Shelf", organized by the Division for Ocean Affairs and the Law of the Sea, United Nations Secretariat, Colombo, Sri Lanka.

June 2003 — Conference on Legal and Scientific Aspects of Continental Shelf Limits, Reykjavik, Iceland.

Papers presented of relevance to continental shelf studies

Nov. 2005 — Rajan, S., and N. Vijayalaxmi, 2005, Ocean Governance in a post-UNCLOS world — the South Asian perspective: New Delhi, EWC/EWCA South Asia Regional Conference.

Sept. 2005 — Vijayalaxmi S. N. and S. Rajan, 2005, Extending the Indian Continental Shelf — a preliminary study through CARIS LOTS: Halifax, Canada, CARIS 2005 — 10th International User Group Conference and Educational Session.

March 2004 — Praveen Vohat, Dhananjai Pandey, John Kurian, U. K. Singh, Vijayalaxmi, N., S. Rajan and P. C. Pandey., 2004, Role of marine geophysical data in delineating Indian Legal Continental Shelf: Mumbai, International Hydrographic Seminar HYDRO-IND 2004, NHO, Dehradun.

Jan. 2004 — Vijayalaxmi, S. N., Rajan, S., Dhananjai Pandey and John Kurian., 2004, Determination of Foot of the Continental Slope for Delineating the outer limits of the Continental shelf through CARIS LOTS: Shimoga, VI Convention of Mineralogical Society of India & International Seminar on Earth Resources Management, Kuvempu University.

April 2002 — Rajan, S., 2002, The Legal Continental Shelf from a geological perspective: Invited paper presented at the International Seminar on "Sedimentation and Tectonics in Space and Time", Dharwar, Dept. of Civil Engineering, SDM College of Engineering.

Feb. 2002 — Rajan, S., Pandey, P. C., and Subba Raju, L. V., 2000, Delineation of the outer limits of the Indian Continental Shelf — Some Scientific and Technical Observations: Goa, 26th Annual Convention and Seminar on Exploration Geophysics, Association of Exploration Geophysicists.

Professional experience as a geoscientist

Currently associated with the following major geoscientific activities, in addition to the continental shelf program:

- Geophysical studies aimed at understanding the plate tectonic evolutionary history of the Southwestern continental margin of India and adjoining ocean basins. As the first phase of the studies, undertook a comprehensive swath-bathymetric, gravity and magnetic surveys off Trivandrum and in the Laccadive plateau and Basin regions
- Study of the genesis of the Deccan volcanic province as well as its offshore extension
- Comparison of the crustal Structure between Eastern Continental Margin of India and Eastern Antarctic Margin through Gravity modeling

Initiated and completed a Project on integrated geophysical studies of the Laxmi Basin-Ridge areas off India's West Coast to delineate the nature of the crust flooring these areas as well as to facilitate an understanding of the evolution of the Arabian Sea basin following the intra-continental breakup of India, Madagascar and the Seychelles at the end of the late Cretaceous (2002-05).

Participated as a Scientist/Chief Scientist in over 20 geological/geophysical cruises in the Arabian Sea for several externally sponsored and Government-funded programmes ranging from seabed geological/geophysical mapping to geotechnical investigations for the development of ports and harbors, oil and metal pollution studies and erosion/accretion assessment in the inner continental shelf areas (1985-1997).

As a resident geologist of the Geological Survey of India, carried out geophysical/geological investigations for two major hydroelectric projects in western India (1981-1985).

Professional experience pertaining to Antarctic studies

Initiated during 2004-05, a Project titled "Mapping the electrical conductivity structure using Magneto-telluric method in Antarctica" in concert with the other scientists of the Centre. The work is in progress.

Participated in the XXIII Indian Scientific Expedition to Antarctica (2003-04) as a member of the Scientific Task Force constituted by the Government for identification of a suitable site for the establishment of a new Indian Antarctic Base. Undertook reconnaissance traverses in the Vestfold Hills, Rauer Islands and the Larsemann Ranges in the Prydz Bay area, East Antarctica and identified a site suitable for the establishment of the Indian Research Base in the Larsemann Hills.

Finalized a project on the Study of the short-term Holocene climate variabilities in Antarctica and the Southern latitudes utilizing sediment cores from the Indian Ocean sector of the Southern Ocean, the cores from the periglacial lakes and the shallow ice-cores from Antarctica. It is proposed to initiate this Project as a national endeavour, during the International Polar Year 2007-09.

Teaching and research experience

Teaching Assistant, Department of Geology & Geophysics, University of Hawaii

1994-1995

- Assisted and instructed undergraduate students in laboratory settings.
- Created all materials for practical demonstrations and laboratory exercises.

Lecturer, Department of Geology, University of Kerala, India

1978-79

- Instructed postgraduate students in classroom and laboratory settings.

Edited volume

Rajan, S., and Pandey, P. C. (Editors), 2005, Antarctic Geoscience, Ocean — Atmosphere interaction and Paleo-climatology: A collection of peer-reviewed papers presented at the National Seminar on "Antarctic Geosciences, Ocean-Atmosphere interaction and paleoclimatology" organized by NCAOR and the Geological Society of India, November 2003.

Other publications

Rajan, S., and Glenn, C. R., 2006, Marl-chalk rhythmicity in the Plio-Pleistocene Black Sea: A record of sedimentation response to climatic changes, Chapter in the Special Publication of the International Association of Sedimentologists, "Authigenic minerals: sedimentology, geochemistry, origins, distribution and applications" (Eds. Ian Jarvis, Karl Follmi and Craig Glenn), due November 2006.

Tiwary, A., Pandey, Dhananjai., and Rajan, S., 2006, Evidence of derivation of melt from basement and lithospheric mantle: Genesis of Deccan Traps revisited: Earth and Planetary Science Letters (under review).

Singh, U. K., Tiwari, R. K., Singh, S. B., and Rajan, S., 2006, Prediction of Electrical Resistivity Structures using Artificial Neural Networks, Journal of Geological Society of India, v. 67, p. 234-242.

Thamban, M., Chaturvedi, A., Rajakumar, A., Naik, S. S., D'Souza, W., Rajan, S., and Ravindra, R., 2006, Aerosol perturbations related to volcanic eruptions during the past few centuries as recorded in an ice core from Central Dronning Maud Land, Antarctica, Current Science.

Rajan, S., Anju Tiwari and Dhananjai Pandey, 2005, The Deccan Volcanic Province: Thoughts about its genesis, www.mantleplumes.org/Deccan2.htm

Rajan, S., and Khare, N., 2002, Emerging Visions in Indian marine Geosciences- the Southern Oceans, (in) Proceedings of the National Seminar on "Four Decades of Marine Geosciences in India- A Retrospective": Kolkata, Geological Survey of India, Spl. Publication No. 74, p. 70-76.

Rajan, S., Mackenzie, F. T., and Glenn, C. R., 1996, A thermodynamic model for water-column precipitation of siderite in Plio-Pleistocene Black Sea, American Journal of Science, v. 296, p. 506-548.

Glenn, C. R., Rajan, S., McMurtry, G. M., and Benaman, J., 1995, Geochemistry, mineralogy and stable isotopic results from Ala Wai estuarine sediments: Records of hypereutrophication and abiotic whitings, Pacific Science, v. 49, p. 367-399.

Rajan, Muralidharan, M. P., Thambi, P. I. et al. 1989, Geotechnical investigations off Kodungallur and Ponnani, Kerala coast, on coastal erosion/accretion, Rec. Geol. Sur. Inda., v. 123, p. 160-161.

Rajan, Thambi, P. I., Mathai, T., and Ittykunju, P. J., 1988, Sand accumulation in a part of the outer approach channel of New Mangalore Port- an analysis, Geol. Surv. India Spl. Pub., v. 24, p. 265-271.

Conference/seminar proceedings and abstracts

Thamban, M., Chaturvedi, A., Rajakumar, A., Naik, S. S., D'Souza, W., Singh, A., Mukherji, S., Rajan, S., and Ravindra, R., 2006, Volcanic history and change during the past few centuries as recorded in an ice core from the central Dronning Maud Land, East Antarctica: SCAR Open Science Conference, Hobart, 12-14 July 2006.

Thamban, M., Chaturvedi, A., Rajakumar, A., Naik, S. S., D'Souza, W., Singh, A., Rajan, S., and Ravindra, R., 2006, Aerosol perturbations related to volcanic eruptions and climate change during the past few centuries as recorded in an ice core from the central Dronning Maud Land, Antarctica: National Seminar on Antarctic Science: Indian contributions in Global Perspectives, Goa, 25-26 May 2006.

Rajan, S., Khare, N., Tiwari, A., and Pandey, D. K., 2005, Proxies and Pitfalls- the Late Quaternary Glacial Evolution of Schirmacher and Larsemann Oases, East Antarctica: National Seminar on Earth Science of East Antarctica, New Delhi, 15-16 September, 2005.

U. K. Singh., D. N. Murthy., K. Veeraswamy., S. Rajan., and T. Harinarayana, 2005, Deep Resistivity Structure and Thermal Regime beneath the Schirmacher Oasis, East Antarctica and Magnetotelluric Geophysical Method: National Seminar on Earth Science of East Antarctica, New Delhi, India, 15-16 September 2005, 69p.

Rajan, S., 2003, Carbonate rhythmites in the Plio-Pleistocene Black Sea: A record of sedimentation response to climatic changes: Annual General Body Meeting of the Geological Society of India, Goa, November 2003.

Rajan, S., 2002, Geochemical Characterization of Freshwater Lakes in the Schirmacher Oasis, Antarctica: A research proposal presented at the "Joint Workshop on Indo-Russian Scientific Collaboration in Polar Science", ILTP, Goa, April 2002. Glenn, C. R., and Rajan, S., 2000, Authigenic marl-chalk rhythmicity in Plio-Pleistocene Black Sea sediments: 31st International Geological Congress, 6-17 August 2000, Rio de Janeiro, Brazil.

Rajan, S., and Khare, N., 1998, Global Warming, Rising Sealevel and Response Strategies: A SAARC Perspective: International Seminar on "Sustainable Use of the Indian Ocean: A SAARC Perspective", New Delhi, India.

Rajan, S., and Glenn, C. R., 1997, Millennial-scale climatic signals from the carbonate record of the Plio-Pleistocene Black Sea: International Symposium on "Isotopes in the Solar System", Physical Research Laboratory, Ahmedabad, India.

Rajan, S., and Glenn, C. R., 1997, Source identification of sedimentary organic matter from stable carbon isotope analyses of individual compounds: International Symposium on "Isotopes in the Solar System", Physical Research Laboratory, Ahmedabad, India.

Rajan, S., and Siddiqi, T., 1994, Growth of electricity use in India and strategies for reducing Greenhouse gas emissions: Ann. Conference on South Asia, University of Wisconsin-Madison, Abstracts, p. 126.

Siddiqi, T., and Rajan, S., 1994, The role of new technologies in reducing future emissions of carbon dioxide from energy use in India: Paper presented at the International Conference on India at the University of Pennsylvania, PA.

Rajan, S., Mackenzie, F. T., and Glenn, C. R., 1993, A thermodynamic model of endogenic siderite precipitation in Plio-Pleistocene Black Sea: Ann. Meeting of Geol. Soc. America, Boston, Mass., Abstracts with programs, A 318-319.

Glenn, C. R., Rajan, S., Hsü, K. J., and Popp, B. N., 1992, Cyclic sedimentation paleoclimate and paleoceanography of the Plio-Pleistocene Black Sea: 29th Int. Geol. Congress, Kyoto, Japan, Abstracts, 2, p. 287.

Technical reports

Integrated geophysical studies of the Laxmi Basin, Arabian Sea, India; Technical Report to the Ministry of Earth Science, Government of India (2006).

Understanding the plate tectonic evolutionary history of the southwestern continental margin of India and the adjoining ocean basins; Technical Report to the Ministry of Earth Science, Government of India (2005).

In addition, have authored/co-authored 19 technical reports pertaining to marine geophysical/geological/geotechnical studies carried out, while working in the Geological Survey of India.

Christian Jürgen Reichert (Germany)

Marital status:	Married
Date of birth:	12 April 1951
Place of birth:	Berlin, Germany
Nationality:	German
Position:	Sub-Division Head Geophysical Research
Office:	Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) Stilleweg 2 D-30655 Hannover
Tel.:	++49-511-643-3244
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e-mail:	christian.reichert@bgr.de

since 1999 Head of sub-division "Geophysical Research" with the Federal Institute for Geosciences and Natural Resources (BGR).

- Management of the running tasks of the sub-division (staff of approximately 70 scientists and technicians), staff and budget planning. This includes Marine Geophysics with comprehensive instrumentation for operations world-wide (reflection and refraktion seismics, magnetics, gravity, geothermics), an airborne technical service with a helicopter (elektromagnetics, magnetics, radiometry, airborne gravity and airborne radar under development), the German Seismological Central Observatory in Erlangen, das National Data Center fulfilling the German tasks within the frame of the Comprehensive Test Ban Treaty (CTBT) of the United Nations (UN) with its seismic and infrasound monitoring stations as well as Applied Geophysics with various electromagnetic methods gravity and geothermics.

- Deputy of the Division Head B3 (Geophysics, Marine and Polar Research) with approximately 140 scientists and technicians).

- Conception and implementation of as well as cooperation in interdisciplinary research projects in the marine sector, application for third party funds (e.g. Federal Ministry of Education and Research: marine research with RV SONNE). Principal tasks are issues with respect to the potential in natural resources and risk potential of selected active and passive continental margins, as well as the basic geological-tectonical processes of margin formation. A portion of this work was externally evaluated in 2001 within the scope of "Research in Energy Resources".

- Conception and implementation of as well as cooperation in third party funded projects with the industries.

- Co-ordinator for the subject "Investigation of the Seas and Polar Regions" within the Research Board of BGR.

- Scientific issues within Article 76 of the United Nations Convention on the Law of the Sea (delineation of the limits of the continental shelf).
- Project-Controlling for the sub-division "Geophysical Research".
- Chief-scientist on three marine-geoscientific expeditions with scientific staff of ca. 18 persons for investigations of the continental margins of Costa Rica, Tasmania and Chile.

1993-1999 Head of Sub-Division "Marine Geophysics, Polar Research" with the Federal Institute for Geosciences and Natural Resources (BGR).

- Management of the running tasks of the sub-division (staff of approximately 50 scientists and technicians), staff and budget planning including the geological-geophysical expeditions to the arctic and Antarctic regions. The latter are realized about bi-annually, and are of high logistical complexity and costs along with intense cooperation with other national and international research groups. (polar-budget approximately. 2.2 Mio Euro per fiscal year).
- Conception and implementation of as well as cooperation in interdisciplinary research projects in the marine sector, application for third party funds (e.g. Federal Ministry of Education and Research: marine research with RV SONNE). Principal tasks are issues with respect to the potential in natural resources and risk potential of selected active and passive continental margins, as well as the basic geological-tectonical processes of margin formation. A portion of this work was externally evaluated in 1994 within the scope of "Seismology, Applied Geophysics, Seismics in Marine and Polar Research".
- Co-ordinator for the subject "Georisk" within the Research Board of BGR. Also this work was externally evaluated in 1998.
- Chief-scientist on four marine-geoscientific expeditions with scientific staff of ca. 18 persons for investigations of the continental margins of East Siberia (Arktc Ocean), Chile, Queen Maud Land (Antarctica), Namibia, Indonesia as well as of the oceanic crust of the Angola Basin. Co-Chief Scientist on two other expeditions: Arabian Sea and Indian Ocean (Ninety east Ridge).

1992-1993 Scientific employee with the Geological Survey of Lower Saxony (NLfB): Acquisition, processing and interpretation of shallow-seismic data.

1992 Doctorate thesis: 'Ein geophysikalischer Beitrag zur Erkundung der Tiefenstruktur des Nordwestdeutschen Beckens längs des refraktionsseismischen Profils NORDDEUTSCHLAND 1975/76' (A geophysical contribution to the investigation of the deep structure of the Northwest German Basin along the seismic refraction profile Northern Germany 1975/76) with focus on seismic and gravimetric methods and modelling.

1983-1991 Manager assistant for the Deutsches Kontinentales Reflexionsseismisches Programme (DEKORP) with the NLfB: Management of comprehensive geo-scientific projects for investigation of the deep Earth's crust in German using various methods with focus on seismic reflection method. Total budget approximately ca. 2 Mio. Euro per year, one scientist, one technician, own seismic reflection equipment and operation.

- Conception, organisation, realization and evaluation of the particular sub-projects, incl. call for tenders, commissioning for the main field work and implementation
- Management of annual status workshops as well as an international symposium ("Deep Seismic Profiling of the Continental Lithosphere", Bayreuth, 1990) with about 200 participants
- Presentation of the results on national and international conferences and meetings as well as by publications
- Collaboration with national and international research groups and industry

1977-1983 Scientific employee with the Niedersächsisches Landesamt für Bodenforschung (NLfB), Hannover:

- Acquisition, processing and interpretation of seismic refraction data
- Geothermics
- Data processing for ^{14}C age dating

1970-1977 Freie Universität Berlin (Free University of Berlin): Regular studies in geophysics along with geology and geodesy

- Diploma thesis: "Entwicklung und Erprobung eines Programmsystems zur digitalen Bearbeitung refraktionsseismischen Datenmaterials" (Development and testing of a programme system for digital processing of seismic refraction data)
- Numerous field work in Europe and Brasil for investigations on the deeper Earth's structures

1957-1970 Primary and Secondary School (Gymnasium) in Berlin.

Current projects

SUNDAARC: High risk volcanism at the active continental margin of the Sunda Arc, Indonesia (overall co-ordination; third party funded joint research project with four other German research institutions and numerous Indonesian partners: German Federal Ministry of Education and Research)

SUNDAARC sub-project KRAKMON: Krakatau Multi-parameter monitoring (project manager)

ARGURU: Continental margin off Argentina and Uruguay (project manager, BGR budget)

Assessment of the support requirements of developing countries for delineation and sustainable usage of their maritime zones (Third party funded: German Federal Ministry for Economic Co-operation and Development)

Foci of work

Structure and processes at active and passive continental margins

Structure of the deep Earth's crust

Main expertise: seismic reflection, seismic refraction, gravity, magnetics

Languages

German, native tongue

English, fluent

French, less fluent

Italian, least fluent

Spanish, basic

Greek, basic

Advisory boards

Curator for the "Seismological Central Observatory Graefenberg" (Chairman in 2001)

Member of the Research Board of BGR

Member of the "Advisory Board for Seismic Field Operations" of the "Council for Physics of the Earth (FKPE)" in Germany

Memberships

Society of Exploration Geophysicists

American Geophysical Union

European Geosciences Union

Deutsche Geophysikalische Gesellschaft

Geologische Vereinigung

Deutsche Gesellschaft für Polarforschung

References

Dr. Karl Hinz, Hannover

Dr. Philip A. Symonds, Canberra

Dr. Indroyono Soesilo, Jakarta

Profa. Dra. Montserrat Torné, Madrid

C/F R. Nunez Gundlach, Santiago de Chile

Ambassador L. Baqueriza, Buenos Aires

C/N H. Roldos de la Sovera, Montevideo

Prof. Dr. Roland von Huene, Camino, CA, USA

SCI Journals

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BUSKE, S., LÜTH, S., MEYER, H., PATZIG, R., REICHERT, C., SHAPIRO, S., WIGGER, P., YOON, M. (2002): Broad depth range seismic imaging of the subducted Nazca Slab, North Chile, Tectonophys., 350, 273-282.

GAEDICKE, C., SCHLÜTER, H.-J., ROESER, H. A., PREXL, A., SCHRECKENBERGER, B., MEYER, H., REICHERT, Chr., CLIFT, P. & AMJAD, S. (2002): Origin of the northern Indus Fan and Murray Ridge, Northern Arabian Sea: interpretation from seismic and magnetic imaging. — Tectonophysics, 355, 127-143.

KOPP, H., KLAESCHEN, D., FLUEH, E. R., BIALAS, J., REICHERT, C. (2002): Crustal structure of the Java margin from seismic wide-angle and multichannel reflection data, J. Geophys. Res., 107, B2 10.1029/2000JB000095

SCHLÜTER, H.-U., GAEDICKE, CH., ROESER, H.A., SCHRECKENBERGER, B., MEYER, H., REICHERT, CH., DJAJADIHARDJA, Y. & PREXL, A. (2002): Tectonic features of the Sumatra-Java forearc of Indonesia. Tectonics, 21 (5), 1047, 11-1 to 11-15.

SCHLÜTER, H. U., PREXL, A., GAEDICKE, Ch., ROESER, H., REICHERT, Ch., MEYER, H. & DANIELS, C. v. (2002): The Makran accretionary wedge: sediment thickness and ages and the origin of mud volcanoes. — Marine Geology, 185, 219-232.

GREVEMEYER, I., FLUEH, E., REICHERT, C., BIALAS, J., KLÄSCHEN, D., KOPP, C. (2001): Crustal Architecture and Deep Structure of the Ninetyeast

Ridge Hotspot Trail from Active-Source Ocean Bottom Seismology. — Geophys. J. Int., 144, 414-431.

KOPP, H., FLUEH, E. R., KLAESCHEN, D., BIALAS, C. REICHERT, J. (2001): Crustal structure of the central Sunda margin at the onset of oblique subduction, Geophys. J. Int., 147 449-474.

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DÜRBAUM, H., REICHERT, C., Sadowiak, P., BRAM K. (eds.) (1992): Preliminary results of Integrated Seismics Oberpfalz 1989. KTB Report 92-5, DEKORP Report, NLfB, Hannover, ISBN 3-928559-08-7.

KÖRBE, M., REICHERT, C. (1992): On the character of "Steep Event SE-1" — reflected energy, reflected refraction or any artifact.-KTB Report 92-5, DEKORP Report, NLfB, Hannover, ISBN 3-928559-08-7.

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ZSCHAU, J., DOMRES, B., MANGER, A., REICHERT, C., SCHNEIDER, G., SMOLKA, A. (2001): Erdbeben. — In: PLATE, E.J., MERZ, B. (eds.): Naturkatastrophen, Ursachen — Auswirkungen — Vorsorge. — 47-82, E. Schweizerbart (Nägele und Obermiller), Stuttgart.

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SCHMOLL, J., BITTNER, R., DÜRBAUM, H.-J., HEINRICHS, T., MEISSNER, R., REICHERT, C., RÜHL, T., WIEDERHOLD, H. (1989): Oberpfalz Deep Seismic Reflection Survey and Velocity Studies. — In: Emmermann, R., Wohlenberg J. (eds.): The German Continental Deep Drilling Program (KTB). Springer-Verlag (Berlin, Heidelberg, New York), 99-150.

LETZ, H., REICHERT, C., WIGGER, P., GIESE, P. (1978): Seismic refraction measurements in the Ligurian Sea and in the Northern Apennines. — In: Closs, H., Roeder, D., Schmidt, K. (eds.) (1978): Alps, Apennines, Hellenides. — E. Schweizerbart, Stuttgart. IUGG, Sci. Rep. No. 38.

07-27489

Michael Anselme Marc Rosette (Seychelles)

Address: Green Estate, Anse Aux Pins, Seychelles

Date of Birth: 21 August 1964

Marital Status: Married

Education

Schools Attended:

Seychelles College, January 1969-December 1981

Seychelles Maritime School, January-December 1982

Ecole des Hydrograhiques de La Marine (Brest, France), September 1984-December 1985

Institut Maritime de Quebec (Rimouski, Canada), January-April 1989

Erindale College, University of Toronto, Maritime Boundary Delimitation Course (Toronto, Canada), May-June 1992

Japan's Maritime Safety Agency, Group Training in Maritime Search and Rescue Operation and Maritime Disaster Prevention (KOBE, Yokosuka,Hiroshima), September-December 1993

Naval Staff College of the Naval War College (Newport, Rhode Island,USA), January 1999-June 1999

Royal Navy Hydrographic School Plymouth (UK), May 2000-August 2000

Training Course on delineation of the outer limits of the continental shelf beyond 200 nautical miles and for preparation of submissions to the Commission on the Limits of the Continental Shelf (Sri Lanka), May 2005

Qualification

0-level in French, English, Literature, Physics, Math, Geography,

History, Biology (Seychelles)

Certificat de Formation Maritime (Seychelles)

Brevet D'Hydrographe (France)

Certificat de Qualification en lève Hydrographique, Mareé,

Positionnement, Projection et levés Geodésiques Certificat de Compétence en Cartographie Marine (Canada)

Certificate of Successful Completion Maritime Boundary Delimitation Course (Canada)

Certificate of Advance Training in Fire Fighting Ship Board Safety Methods, Pollution Prevention and Control and Other Related Subjects (Japan)

Certificate of Successful Completion Group Training in Maritime Search and Rescue Operations and Maritime Disaster Prevention (Japan)

Diploma in Military Strategy and Policy, Naval Staff Officer (USA)

Certificate in Hydrography Class B International Hydrography Organization

Date joined Seychelles People's Defence Forces (Navy): 7 December 1982

Date Commissioned as Officer: 25 November 1988

Actual Position: Executive Officer for the Seychelles Coast Guard

Rank in SPDF: Major

Philip Alexander Symonds (Australia)

Address:	6 Guthridge Cres., Wanniassa, A.C.T. 2903
Birth:	9 May 1949
Nationality:	Australian
Marital status:	Married; four children
Languages:	English — native; German — minimal reading and speaking; French — minimal reading and speaking

Present position

Title:	Senior Adviser — Science and Law of the Sea; Petroleum and Marine Division (PMD)
Organisation:	Geoscience Australia
Address:	G.P.O. Box 378, Canberra, A.C.T. 2601
Phone:	+61-2-62499490
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Academic qualifications

B.Sc. (Geology & Geophysics) 1969, Uni. of Tasmania

B.Sc. (Hons. 1st), (Geophysics) 1971, Uni. of Tasmania

Career summary

1970-71	Cadet Geophysicist, BMR
1971-84	Science 1-Science 3 (Geophysicist) BMR
1984-86	Research Scientist, BMR, Marine Division
1986-91	Senior Research Scientist, BMR, Marine Division
1991-02	Principal Research Scientist, AGSO/Geoscience Australia, PMD
2002-05	Senior Adviser — Law of the Sea, Geoscience Australia, PMD
2005-	Senior Adviser — Science and Law of the Sea, Geoscience Australia, PMD

Honours, awards

Mount Lyell Prize for Geology, 1969

Christopher Holmes Memorial Prize, 1969

Australian Public Service Cadetship, 1970

PESA Best presented paper, APEA 1988 (co-author)

1991 Australia Day Achievement Award (research on N.E. Australian margin)

1995 Australia Day Achievement Award (for studies related to the definition of Australia's continental shelf under UNCLOS)

1997 Distinguished AGSO Lecturer and Harold Raggatt Award (for work involved in definition of the outer limit of Australia's continental shelf under UNCLOS)

2004 Geoscience Australia, CEO Achievement Award — Law of the Sea project

2005 Public Service Medal for geoscientific contribution to Australia's maritime boundaries, particularly its continental shelf submission under UNCLOS

Positions held outside Geoscience Australia

Australian ODP Scientific Committee 1988-92

Chairman, Australian ODP Scientific Committee 1993-96

Chairman and Co-chairman of Marine Geoscience & Petroleum Geology Future Program Committee, 1989-93

International JOIDES Tectonics Panel, Australian/Canadian member 1992-95

Member of UN Group of Technical Experts on the Definition of the Continental Shelf, New York, March 1993

Member of UN Group of Technical Experts on the Preparations for the Establishment of the Commission on the Limits of the Continental Shelf, New York, Sept. 1995

Member of Australian delegation for Australia/Indonesia maritime boundary negotiations, 1993-97

Editorial Committee for IOC/IHO book — "Continental Shelf limits", 1997-2000

Member of Australian delegation for Australia/New Zealand maritime boundary negotiations, 2000-04

Visiting Professorial Fellow, Centre of Maritime Policy, Faculty of Law, University of Wollongong, 2002-present

Member of the UN Commission on the Limits of the Continental Shelf (CLCS), 2002-07.

Chairman of the Standing Committee on Provision of Scientific and Technical Advice to Coastal States, CLCS, 2002-present

Vice-chairman of the Sub-commission of CLCS for consideration of the submission of Brazil, 2004-present

Member of the Sub-commission of CLCS for consideration of the submission of Ireland, 2005-present

Vice-chairman of the Sub-commission of CLCS for consideration of the joint submission of France, Ireland, Spain and the United Kingdom of Great Britain and Northern Ireland, 2006-present

Membership of professional societies

Member, Petroleum Exploration Society of Australia

Work experience with other countries

Germany, U.S.A., Spain, Norway, France, New Zealand, and more than eight other countries since 2004.

Employment record summary (activities relevant to UNCLOS)

2002 to present
Geoscience Australia — Senior Adviser — Science and Law of the Sea, PMD

- *Senior Adviser — Law of the Sea* — provide high-level strategic scientific leadership and advice to Geoscience Australia, Department of Foreign Affairs and Trade and Attorney-General's Department to support the preparation and lodgement of Australia's submission on the outer limits of its extended continental shelf, and maritime boundary negotiations with neighbouring countries.
- *Senior Adviser — Science* — provide high-level advice to Chief PMD and PMD project areas on geological, resource and environmental matters related to Australia's marine jurisdiction.
- Participate as an elected Member in all activities of the UN Commission on the Limits of the Continental Shelf
- General assistance/support to a number of States considering making continental shelf submissions, in particular Pacific Island countries through SOPAC.

1994 to 2002
Australian Geological Survey Organisation (AGSO)/Geoscience Australia — Principal Research Scientist, PMD

- *Law of the Sea Project Leader* — scientific leader and manager of high-profile AGSO/Geoscience Australia project in charge of all aspects of the scientific activities related to definition of the outer limits of Australia's extended continental shelf beyond 200 nautical miles — data acquisition and processing; interpretation; Article 76 analysis; boundary definition. Activities involved:
  - Optimum definition of the legal continental shelf around Australia and its territories.
  - Advice and support to Australian government on maritime boundaries and the definition of Australia's offshore jurisdiction.
  - Advice and support to Australian Government on policy formulation and offshore resource management under the Oceans Policy and Marine Science and Technology Plan
  - Maritime boundary and related negotiations between Australia and adjacent coastal States — Indonesia, New Zealand.
  - Volcanic margin research in collaboration with Norwegian colleagues.

- Representing Australian at United Nations meetings and other international activities on Continental Shelf definition under UNCLOS
  - Invited member of UN Group of Technical Experts on the Preparations for the Establishment of the Commission on the Limits of the Continental Shelf, New York, Sept. 1995.
  - Member of the IOC/IHO editorial committee for the book "Continental Shelf limits — the scientific and legal interface", 1996-1999.
  - Open meeting of the Commission on the Limits of the Continental Shelf, May 2000.
  - Invited participant in Continental Shelf Conference, Argentina, Nov. 2000.
  - Presented papers at several international technical meetings on Law of the Sea — Geodetic Aspects of Law of the Sea, Bali, 1996; Advisory Board on Law of the Sea, Monaco, 1999, 2001.
- Provision of general assistance/support to other countries on continental shelf definition under UNCLOS
- Elected to UN Commission on the Limits of the Continental Shelf, April 2002.

1991 to 1994
Australian Geological Survey Organisation (AGSO; ex BMR) — Principal Research Scientist, Marine, Petroleum & Sedimentary Resources Division

- In charge of major scientific and resource-related projects investigating sedimentary basin and continental margin development off northeast and northwest Australia involving international and national collaboration.
- Member of international JOIDES Tectonic Panel 1992-95 and Chairman of Australian Ocean Drilling Program (ODP) Scientific Committee 1993-96.
- In charge of AGSO's Law of Sea and seabed boundary activities and technical advice to Australian government:
  - Member of Australian delegations involved in Australia/Indonesia seabed boundary negotiations.
  - Invited member UN Group of Technical Experts on the Definition of the Continental Shelf, 1993.
  - Invited speaker at 27th Annual Conference of the Law of the Sea Institute, Seoul, 1993.

1986 to 1991
Bureau of Mineral Resources (BMR) — Senior Research Scientist, Marine Geoscience and Petroleum Geology Program (MGPG)

- Leader of continental margin, sedimentary basin and carbonate platform research off northeast Australia and in the Great Barrier Reef region:
  - Participated on ODP scientific drilling leg 133 off northeast Australia.

- Extensional tectonics research — global and Australian margin.
- In charge of BMR's Law of Sea and seabed boundary activities and technical advice to government — publications on Australia's jurisdiction and resource potential beyond 200 nautical miles.

1984 to 1986
Bureau of Mineral Resources — Research Scientist, MGPG

- Continental margin research and petroleum resource potential over the whole Australian margin.
- Sedimentary basin and carbonate platform research focussing on the northeast Australian margin and the Great Barrier Reef region.
- International collaborative research with Germany on the Lord Howe Rise off eastern Australia.
- Australian technical expert on Law of Sea and seabed boundary matters.

1980 to 1984
Bureau of Mineral Resources — Science 3 (Geophysicist), MGPG

- Great Barrier Reef research.
- Continental margin research in the Coral Sea Basin region in collaboration with Germany.
- Australian technical expert on Law of Sea and seabed boundary matters.

1973 to 1980
Bureau of Mineral Resources — Science 2 (Geophysicist), Geophysics Division, Seismic, Gravity & Marine Section

- Continental margin research and mapping/surveying of Australia's margin — western and eastern Australian margins and Lord Howe Rise.
- Australian technical adviser on Law of Sea and seabed boundary matters:
  - Member of Australian delegation for France/Australia maritime delimitation negotiations.
  - Technical adviser to Australian Government throughout negotiations leading to Article 76 of UNCLOS during the Third United Nations Conference on the Law of the Sea.

1971 to 1973
Bureau of Mineral Resources — Science 1 (Geophysicist), Geophysics Division, Seismic, Gravity & Marine Section

- Surveying and mapping the whole of Australia's margin — Continental Margins Survey:
  - BMR on-board representative during data collection on many surveys.
  - Data processing and interpretation, particularly off eastern Australia.

1970 to 1971
Bureau of Mineral Resources — Cadet Geophysicist

- Honours studies in geophysics at University of Tasmania on terrestrial heat-flow and modes of granitic body emplacement using gravity techniques in northeast Tasmania.

Research interests

Scientific and technical aspects of maritime boundary definition, in particular the outer limits of the continental shelf.

Nature and development of continental margins and their resource potential.

Nature of continent/ocean boundaries and transition zones.

Geoscience aspects of environmental and resource management, and sustainable development of marine jurisdictions.

Publications, presentations and conferences/symposia

Symonds is an author of over 120 papers and reports and over 90 abstracts and extended abstracts in national and international journals and report series. He has also produced numerous professional opinions, maps, internal reports and discussions papers on many aspects of continental margins and their resource potential, particularly on maritime boundary delimitation and the determination of the outer limits of the continental shelf under UNCLOS. Symonds has participated in over 50 national and international conferences and symposia, and presented papers and posters at many of these.

A selection of his publications/reports on continental margins, particularly those related to definition of the outer limit of the continental shelf, is given below, as well as a list of recent Law of the Sea related conferences that Symonds has attended.

Marine survey experience

Symonds has over 22 months sea-going survey experience on geophysical, geological and scientific drilling cruises involving national, international and contract vessels, and was cruise leader or co-chief scientist on many of these. A number of the surveys involved international collaboration using both Australian and foreign vessels.

Selected publications on continental margins (particularly those relevant to UNCLOS Continental Shelf definition*)

Symonds, P.A., Fritsch, J., & Schluter, H-U., 1983 — Continental margin around the western Coral sea basin: structural elements, seismic sequences and petroleum geological aspects. *Transaction Vol. 3rd Circum-Pacific Energy and Mineral Resources Conference, Honolulu, 1982,* 243-252.

Symonds, P.A., Davies, P.J., & Parisi, A., 1983 — Structure and stratigraphy of the central Great Barrier Reef. *BMR Journal of Australian Geology & Geophysics,* 8(3), 277-291.

Lister, G.S., Etheridge, M.A., & Symonds, P.A., 1986 — Application of the detachment fault model to the formation of passive continental margins. *Geology*, 14, 246-250.

Etheridge, M.A., Symonds, P.A., Powell, T.G., & Lister, G.S., 1988 — Application of the detachment model for continental extension to hydrocarbon exploration in extensional basins. *APEA Journal*, 28, 167-187.

Davies, P.J., Symonds, P.A., Feary, D.A., & Pigram, C.J., 1988 — Facies models in exploration — the carbonate platforms of northeast Australia. *APEA Journal*, 28, 123-143.

*Symonds, P.A., & Willcox, J.B., 1989 — Definition of the continental margin using U.N. Convention on the Law of the Sea (Article 76), and its application to Australia. *Bureau of Mineral Resources, Australia, Record*, 1988/38, 24p.

*Symonds, P.A., & Willcox, J.B., 1989 — Australia's petroleum potential in areas beyond an Exclusive Economic Zone. *BMR Journal of Australian Geology & Geophysics.*, 11(1), 11-36.

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Recent conferences attended relevant to Law of the Sea

(Titles of presentations made are indicated in parentheses)

1996 Conference on Geodetic Aspects of Law of the Sea, Bali (Invited; Definition of Australia's Continental Shelf: approaches and implications).

1997 AGSO FRAME Workshop, Gold Creek Homestead, Canberra Feb. 1997 (Invited; AGSO's Law of the Sea project: achievements and the future).

1997 Workshop on Marine Geoscience and the Australian Ocean Territory, Tectonics Special Research Centre, University of WA, March 1997 (Invited; Law of the Sea: what does it mean for Australia?).

1997 3rd Australian Marine Geoscience Conference, Adelaide, 30 Sept.-3 Oct. 1997 (Defining the outer limits of Australia's marine jurisdiction: implications for geoscience and resources).

1997 Selwyn Memorial Symposium, Melbourne, Oct. 1997 (Invited; Marine geoscience, law and the outer limits of Australia's resource zone).

1997 Australian Marine Sciences association 1998 Conference, July, Adelaide (Invited; Marine geoscience, law and the outer limits of Australia's resource zone).

1998 '98 UNESCO Year of the Ocean in the Tasmanian & Southern Ocean context, 30 Sept.-3 Oct. 1998, Hobart (Invited; Marine geoscience, law and the outer limits of Australia's resource zone).

1999	International Conference on Technical Aspects of Maritime Boundary Delineation and Delimitation, IHB, Monaco, 1999 (A set of integrated tools based on ArcView defining the outer limit of Australia's extended continental shelf; Australia's approach to defining its extended continental shelf: progress and issues arising).
2000	Open Meeting of the Commission on the Limits of the Continental Shelf, New York, May, 2000.
2000	Continental Shelf Conference, Buenos Aires, Nov. 2000 (Invited; Defining the outer limits of Australia's continental shelf — approaches and issues).
2001	ABLOS Conference, Monaco, Oct. 2001 (Invited; 2 papers presented)
2002	PESA Eastern Australasian Basins Symposium, Melbourne, Nov. 2001 (The outer limits of Australia's resource jurisdiction off eastern Australia).
2001	Invitation Symposium of the Australian Academy of Technological Sciences and Engineering, Hobart, Nov. 2001; Looking South — Managing Technology, Opportunities and the Global Environment (Invited; Australia's Southern Ocean jurisdiction and opportunities under the Law of the Sea).
2003	Legal and Scientific Aspects of Continental Shelf Limits, Reykjavik, 27th Annual Conference of Centre for Oceans Law and Policy, University of Virginia Law School and Law of the Sea Institute of Iceland (Invited; 2 papers presented)
2004	Strategic Directions for Australia and the Law of the Sea, Symposium for the 10th Anniversary of the Law of the Sea Convention, Canberra, 16 November 2004 (Invited speaker; Australia's continental shelf)
2005	Training Course on the Delineation of the Outer limits of the Continental Shelf beyond 200 Nautical Miles, Fiji, 28 February-4 March 2005, organised by UN Division of Ocean Affairs and Law of the Sea in cooperation with the South Pacific Applied Geoscience Commission (SOPAC) and the Commonwealth Secretariat (Invited — involved in training of technical staff of developing States, members of SOPAC, as well as four other developing States of the neighbouring South-East-Asia subregion).
2006	International Symposium on Scientific and Technical Aspects on the Establishment of the Outer Limits of the Continental Shelf beyond 200 Nautical Miles, Tokyo, 6-7 March 2006 (Invited).

Kensaku Tamaki (Japan)

Date of birth: 1 October 1948

Affiliation: University of Tokyo

Education

1985	Doctor of Science in Geology, Kyushu University, Fukuoka, Japan
1974	Bachelor of Science in Engineering, University of Tokyo

Awards

2000	Fellow, Geological Society of America
1987	Award for Hydrographic Technology Advancement

Current positions

2005-	Director, Department of Geosystem Engineering, Graduate School of Engineering, University of Tokyo
2004-	Professor, Department of Geosystem Engineering, Graduate School of Engineering, University of Tokyo
2002-	Member, Commission on the Limits of the Continental Shelf

Professional experience

1994-2004	Professor, Ocean Floor Geoscience Division, Ocean Research Institute, University of Tokyo
1986-1994	Associate Professor, Ocean Floor Geoscience Division, Ocean Research Institute, University of Tokyo
1983-1986	Senior Researcher, Geological Survey of Japan, Ministry of International Trade and Industry
1974-1983	Researcher, Geological Survey of Japan, Ministry of International Trade and Industry

Guest positions

2005-	Visiting Professor, Center for Advanced Marine Core Research, Kochi University, Japan
2000	Visiting Lecturer, China University of Geoscience, Beijing and Wuhan
1998	Visiting Lecturer, China University of Geoscience, Beijing
1998	Guest Professor, Changchun University of Science and Technology, China
1984-1985	Visiting Researcher, University of Rhode Island Graduate School of Oceanography, United States

International affiliations

2003-2005	Chair, Science Planning and Policy Oversight Committee of Integrated Ocean Drilling Program (IODP)
2000-2004	Chair, InterRidge Program (International mid-oceanic ridge research initiative)
1998-	Editorial Board, *Marine Geophysical Research*
1998	Co-Chair, Ocean Drilling Program Technical Operation Workshop at Houston, Texas, United States
1997-2000	Editorial Board, *Journal of the Geological Society of Japan*
1997-1999	Ocean Drilling Programme (ODP) Operation Committee
1997-1999	ODP Science Committee
1996-1997	Editorial Board, *Journal of Physics of the Earth*
1994-1997	Editorial Board, *Journal of Geomagnetism and Geoelectricity*
1993-1996	Chair, InterRidge Back-arc Basin Working Group
1992-1998	Editorial Board, *Tectonophysics*
1992-1996	InterRidge Project Steering Committee
1989	Co-Chief Scientist, ODP Leg 127

Domestic affiliations

2005-	Executive Board, Marine Technology Forum
2004-	Executive Board, the Mining and Materials Processing Institute of Japan
2001-2004	Chair, Long-term Cruise Planning Committee, Ocean Research Institute, University of Tokyo
1998-2002	Chair, Earth Science Board, Evaluation Committee for Japan Marine Science and Technology Center (JAMSTEC)
1997-2002	Chair, Long-term Cruise Planning Committee, Japan Marine Science and Technology Center (JAMSTEC)
1997-2001	IODP/OD21 National Advisory Committee
1993-2006	Chair, InterRidge Japan Office
1986-2004	ODP National Advisory Committee

Major field experience

2006-2007	Chief, *R/V Hakuhomaru* expedition, Indian Ocean
2006	Chief, *R/V Tanseimaru* expedition, Western Pacific
2005	Chief, *R/V Kairei* expedition with AUV, Western Pacific
2000-2001	Co-Chief, *Aden New Century* cruise, Gulf of Aden, Indian Ocean

2000	Co-Chief, *Knipovich Ridge-2000* cruise, Arctic Atlantic
1998	Chief, *R/V Kaiko* expedition, Japan Trench
1997	Chief, on-land gravity survey, Viet Nam
1997	Co-Chief, *InterRidge Fuji* cruise, South-western Indian Ridge, *R/V Marion Defuresne*
1996	Mariana Trough research cruise, *R/V Yokosuka*
1995	Central Indian Ocean research cruise, *R/V Meteor*
1994	South-western Indian Ridge research cruise, *R/V Hakuhomaru*
1993	Co-Chief, Rodriguez Triple Junction Expedition, *R/V Hakuhomaru*
1989	Co-Chief, ODP Leg 127, Japan Sea
1988	Physical Property Scientist, ODP Leg 121, Ninety-east Ridge
1974-1985	Intensive research by seismic reflection and magnetics, *R/V Hakureimaru*, Western to Central Pacific

Research interests

Professor Tamaki has been working exclusively in the field of marine geology and geophysics, focusing on global tectonics and the dynamics of the ocean floor and their relations to the formation of ore deposits on the seafloor. His approach to this field is to cover a wide range of phenomena, from mid-oceanic ridges and hot spots to deep-sea trenched, in order to understand global ocean floor geology. His recent field work has been concentrated on the Western Pacific and the Indian Ocean.

Main publications

Sauter, D., V. Mendel, C. Rommevaux-Jestin, L. M. Parson, H. Fujimoto, C. Me´vel, M. Cannat, and K. Tamaki, Focused magmatism versus amagmatic spreading along the ultra-slow spreading Southwest Indian Ridge: Evidence from TOBI side scan sonar imagery, Geochem. Geophys. Geosyst., 5, 2004

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Sauter, D., L. Parson, V. Mendel, C. Rommevaux-Jestin, O. Gomez, A. Briais, C. Mevel, K. Tamaki, and FUJI scientific team, TOBI sidescan sonar imagery of the

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October-December 1983	– Training in geophysics instrumentation in Toronto (scintrex) CANADA
February-March 1987	– Specialised in gravimetrics prospecting in INSTP Yamoussokro en COTE d'IVOIRE
August-October 1998	– International Programme for Petroleum Management and Administration, Norwegian Petroleum Directorate (NPD), Stavanger (NORWAY) Certificate of Petroleum Policy and Management
September-November 2002	– Foundations of Petrophysics and production Geology For other disciplines in Warry (NIGERIA) Certificate of graduation

Offices held

November-December 1998	– National manager of Seismical refraction (3D) mission Study in offshore of Togo by Petroleum Geophysics Service (PGS), Norwegian Company
January 1995 to December 2005	– Head of Department of Geophysics — Hydrogeology — Drilling at Mine and Geology Directorate
October-November 1995	– Trial of geophysical methods improvement of water zones establishment in OGOU and KLOTO Prefectures (structural unity of Togo and Benin plain) Within hydraulic village (Project of UNICEF)
April-May 1991	– Geophysical methods for polymetallical substances Search at Pagala and gold at Aleheride, project of OTP-NIGERIA-BRGM (FRANCE)
1988-1990	– Geophysical prospecting on Ilmenites indications at Dokplala-Alokoegbe

November-December 1987	– Gravimetrical prospecting participation in coastal Sedimentary basin by Geoterrex Society of CANADA
1987	– Geophysical campaign for the search of phosphate at Bassar, Projet of OTP-NIGERIA-BRGM (FRANCE)
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December 1984	– National manager of the offshore drilling follow by Geophysical Service Incorporation (GSI) of CANADA
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